

WEST SACRAMENTO PROJECT GENERAL REEVALUATION REPORT



AGENDA ITEM II: RESOLUTION 08-21

FEASIBILITY COST SHARE AGREEMENT
LOCAL FEASIBILITY COST SHARE AGREEMENT

JANUARY 16, 2009

DEPARTMENT OF WATER
RESOURCES

Division of
Flood Management

WEST SACRAMENTO PROJECT TEAM

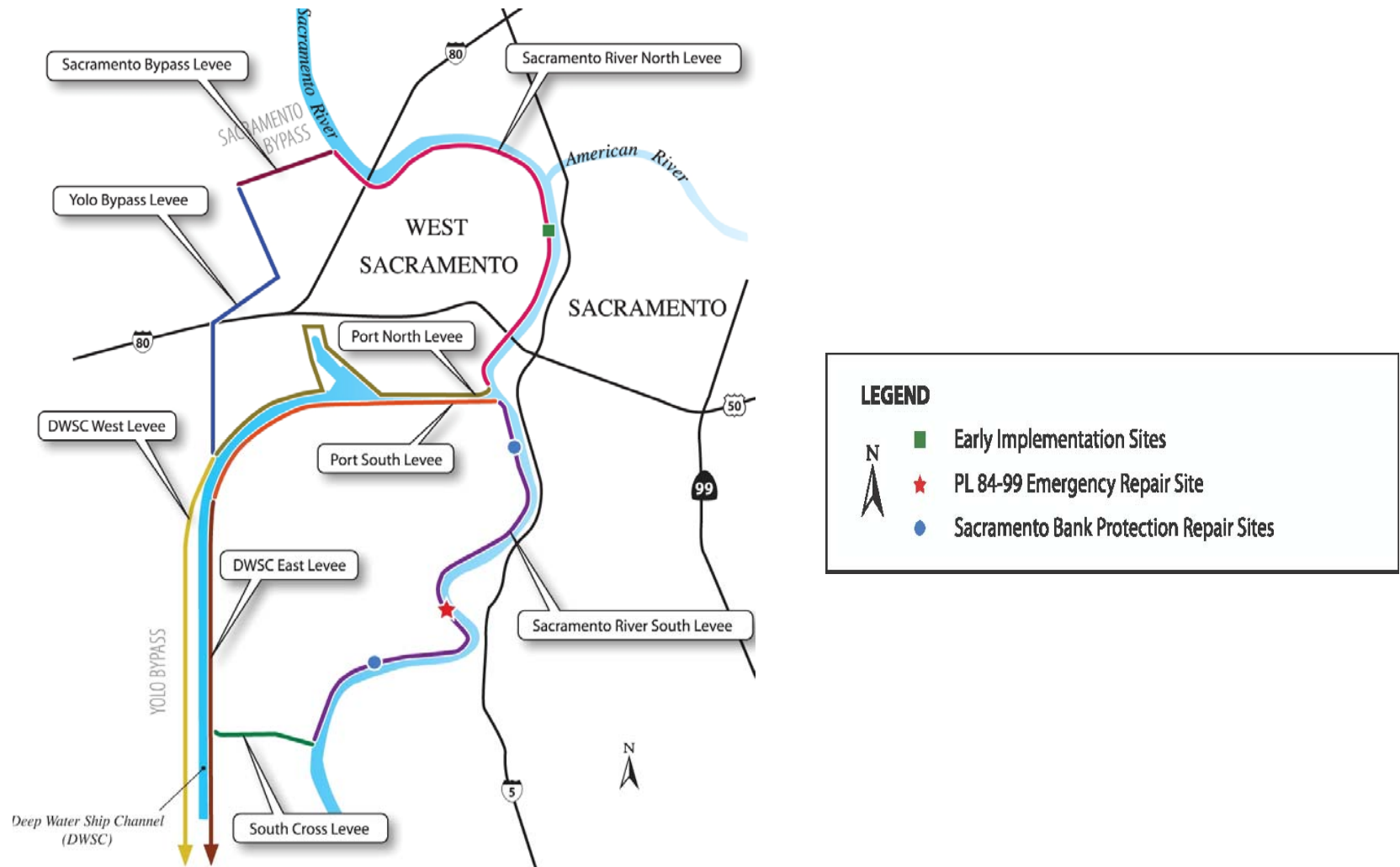
- DEPARTMENT OF WATER RESOURCES, DIVISION OF FLOOD MANAGEMENT/ CVFPB
- ARMY CORPS OF ENGINEERS, SACRAMENTO DISTRICT
- WEST SACRAMENTO AREA FLOOD CONTROL AGENCY
 - CITY OF WEST SACRAMENTO
 - RECLAMATION DISTRICTS 900
 - RECLAMATION DISTRICTS 537

DEPARTMENT OF WATER
RESOURCES



Division of
Flood Management

WSAFCA PROJECT LEVEE SYSTEM



DEPARTMENT OF WATER
RESOURCES



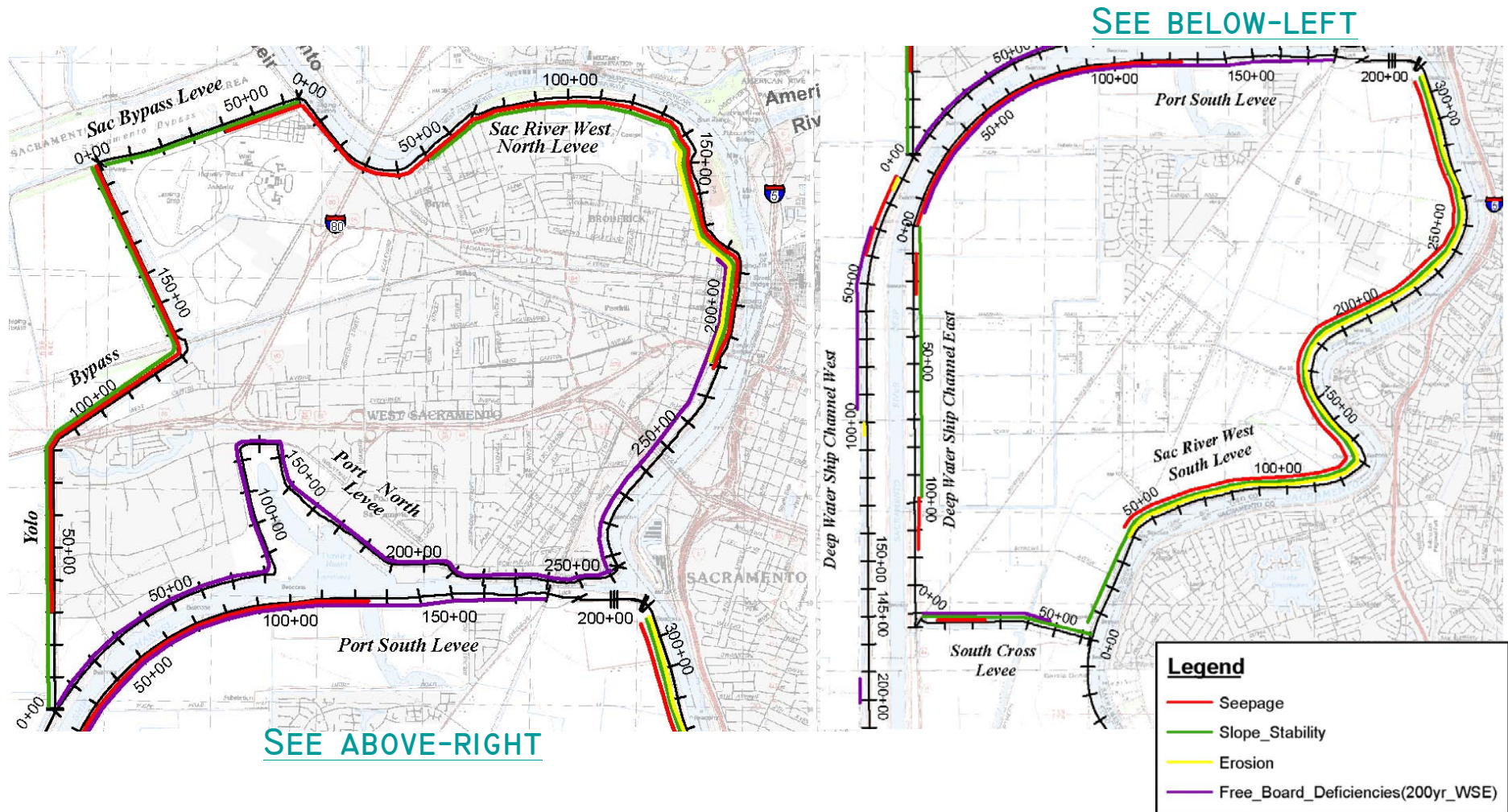
Division of
Flood Management

HISTORY OF LEVEE IMPROVEMENTS

- SACRAMENTO URBAN LEVEE RECONSTRUCTION PROJECT 1990 to 1993
- WSAFCA FORMED 1994
- ASSESSMENT DISTRICT FORMED 1995
 - WRDA 1992 - SACRAMENTO METRO AREA PROJECT
- USACE IDENTIFIES UNDERSEEPAGE DEFICIENCIES 1997
- ORIGINAL WEST SACRAMENTO PROJECT 1998 to 2002
 - DESIGNED TO PROVIDE GREATER THAN 200-YEAR PROTECTION
 - RAISED AND STRENGTHENED PORTIONS OF THE SACRAMENTO BYPASS
 - RAISED AND STRENGTHENED PORTIONS OF THE YOLO BYPASS LEVEE
- USACE ADOPTS NEW CERTIFICATION GUIDANCE 2007
 - NEW GUIDANCE OBFUSCATES ORIGINAL PROTECTION LEVEL OBJECTIVES
 - PROJECT REEVALUATION NECESSARY TO CORRECT PROJECT DEFICIENCIES



PRELIMINARY LEVEE EVALUATION FINDINGS



DEPARTMENT OF WATER
RESOURCES



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PROJECT GOALS

□ SHORT TERM

- COMPLETE SLIP SITE REPAIRS ON YOLO BYPASS
- INITIATE EIS/EIR FOR GRR
- FINALIZE THE PROJECT MANAGEMENT REPORT (PMP)
- EXECUTE COST SHARING AGREEMENT FOR GENERAL RE-EVALUATION REPORT (GRR).

□ MEDIUM TERM

- WSAFCA TO COMPLETE SELECT LEVEE IMPROVEMENTS IN ADVANCE OF GRR
- COMPLETE GRR FOR AUTHORIZATION

□ LONG TERM

- CORPS COMPLETES THE REMAINING LEVEE IMPROVEMENT ALTERNATIVES IDENTIFIED WITHIN THE GRR AS AUTHORIZED.

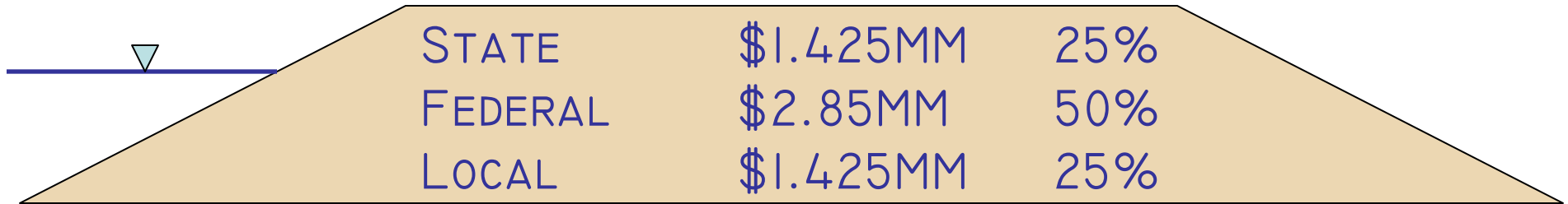
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PRELIMINARY ESTIMATE OF GRR

FUNDING SOURCES



| | | |
|---------|-----------|-----|
| STATE | \$1.425MM | 25% |
| FEDERAL | \$2.85MM | 50% |
| LOCAL | \$1.425MM | 25% |

TOTAL ESTIMATED STUDY COST = \$5.7MM

DEPARTMENT OF WATER
RESOURCES



Division of
Flood Management

WORK IN PROGRESS

□ SLIP REPAIR SITES

JULY 2009

□ FINAL FCSEA AND LFCSEA

FEB 2009

□ GRR CHIEFS' REPORT

~DEC 2011

DEPARTMENT OF WATER
RESOURCES



Division of
Flood Management

REQUESTED CVFPB ACTIONS

1. APPROVE THE AGREEMENT AMONG THE BOARD, WSAFCA AND THE CORPS FOR THE WEST SACRAMENTO, CALIFORNIA GENERAL REEVALUATION REPORT.
2. APPROVE THE LOCAL FEASIBILITY COST-SHARING AGREEMENT WITH THE WSAFCA FOR THE WEST SACRAMENTO, CALIFORNIA GENERAL REEVALUATION REPORT.
3. DELEGATE TO THE BOARD PRESIDENT THE AUTHORITY TO EXECUTE THE AGREEMENTS.

DEPARTMENT OF WATER
RESOURCES



Division of
Flood Management

QUESTIONS

DWR: CHRIS SCOBBA, PROJECT MANGER
(916) 574-0370
CSCOBBA@WATER.CA.GOV

USACE: MICHELLE KUHL , PROJECT MANGER
(916) 557-7619
MICHELLE.M.KUHL@USACE.ARMY.MIL

WSAFCA: MICHAEL BESSETTE, FLOOD PROTECTION MANGER
(916) 371-4645
MIKEB@CITYOFWESTSACRAMENTO.ORG

DEPARTMENT OF WATER
RESOURCES



Division of
Flood Management

STATE OF CALIFORNIA
THE RESOURCES AGENCY
CENTRAL VALLEY FLOOD PROTECTION BOARD

RESOLUTION NO. 08-21

WEST SACRAMENTO PROJECT
APPROVE THE FEASIBILITY COST SHARE AGREEMENT AND
LOCAL FEASIBILITY COST SHARE AGREEMENT FOR
GENERAL REEVALUATION REPORT

WHEREAS, on May 17, 1996, The Reclamation Board, predecessor of the Central Valley Flood Protection Board (Board) and the U. S. Army Corps of Engineers (Corps) executed a Project Cooperation Agreement (PCA) for the construction of the West Sacramento Project (Project); and

WHEREAS, on May 17, 1996, The Reclamation Board and the West Sacramento Joint Powers Authority (WSJPA), comprised of Reclamation No. 537, Reclamation District No. 900, and the City of West Sacramento, predecessor of the West Sacramento Area Flood Control District (WSAFCA) executed a Local Project Cooperation Agreement (LPCA) for the Project; and

WHEREAS, the Project was reauthorized by the Energy and Water Development Appropriation Act of 1999, PL 105-245; and

WHEREAS, the construction for the Project was completed in 2005; and

WHEREAS, the Project does not meet flood protection levels as originally authorized due to levee performance deficiencies discovered subsequent to Project construction; and

WHEREAS, the completed Project does not meet current Corps policy related to analysis of geotechnical data and levee design criteria, specifically through and underseepage analysis; and

WHEREAS, the State of California Department of Water Resources, Division of Flood Management (State) has established a minimum flood protection requirement for urban communities for a 200-year storm event; and

WHEREAS, the Project does not meet current flood protection levels as required by the State; and

WHEREAS, construction of the Joint Federal Project modifying the Folsom Dam has been authorized by WRDA 2007 and is now designed to release 160,000 cubic feet per second when complete; and

WHEREAS, the Project was not designed to accommodate the proposed post-construction flood release from Folsom Dam; and

WHEREAS, the Corps and non-Federal Sponsors have determined that reevaluation of the Project via a General Reevaluation Report (Study) is required to formulate viable alternatives that, if authorized will correct current Project deficiencies; and

WHEREAS, the Corps is required and authorized to enter into a Feasibility Cost Sharing Agreement (Agreement) to conduct a general reevaluation of the West Sacramento Project; and

WHEREAS, the Corps intends to be the Federal Sponsor of the Study; and

WHEREAS, the Board and WSAFCA are required to enter into a Local Feasibility Cost Sharing Agreement (Local Agreement) to carry out the non-Federal sponsors' responsibilities under the Agreement; and

WHEREAS, a Project Management Plan (PMP) is currently under development to outline and define major tasks, task management, schedule, and estimated costs for the Study.

WHEREAS, the PMP is the primary supporting document to the Agreement; and

WHEREAS, the Study costs are currently estimated to be \$4,500,000; and

WHEREAS, the Study costs are to be cost-shared equally between the Federal and non-Federal sponsors; and

WHEREAS, the non-Federal Study costs are to be cost-shared equally between the Board and WSAFCA; and

WHEREAS, the Agreement and Local Agreement are being negotiated and are currently in non-final form; and

WHEREAS, the WSAFCA will, prior to the January 16, 2009 Board meeting, obtain a WSAFCA Board resolution that will provide authorization to enter into a Local Agreement and Agreement; and

WHEREAS, the WSAFCA will obtain a self-certification of financial capability prior to the January 16, 2009 Board meeting; and

NOW, THEREFORE, LET IT BE RESOLVED that the Central Valley Flood Protection Board:

1. Approves the Agreement among the Board, WSAFCA and the Corps For the West Sacramento, California General Reevaluation Report in substantially the form attached hereto.
2. Approves the Local Feasibility Cost-Sharing Agreement with the WSAFCA For the West Sacramento, California General Reevaluation Report in substantially the form attached hereto.
3. Delegates to the Board President the authority to execute the agreements.

By: _____
Benjamin F. Carter
President

Date: _____

By: _____
Maureen Doherty
Secretary

Date: _____

FPO Control # FPO1020001
CScobba/Gpearson

RESOLUTION NO. 08-11-01

**A RESOLUTION OF THE BOARD OF DIRECTORS OF THE
WEST SACRAMENTO AREA FLOOD CONTROL AGENCY
AUTHORIZING THE BOARD CHAIRMAN TO EXECUTE COST-SHARE
AGREEMENTS FOR THE WEST SACRAMENTO GENERAL REEVALUATION
REPORT AND TO SIGN SUBSEQUENT AMENDMENTS AS NECESSARY**

WHEREAS, the United States Army Corps of Engineers (Corps) is authorized to conduct a General Reevaluation Report for the West Sacramento, California Project, pursuant to the Water Resources Development Act of 1992, Public Law 102-580 and the Energy and Water Development Appropriation Act of 1999, Public Law 105-245;

WHEREAS, prior to proceeding with such General Reevaluation Report, the Corps conducted a reconnaissance study and determined that further planning in the nature of a General Reevaluation Report should proceed;

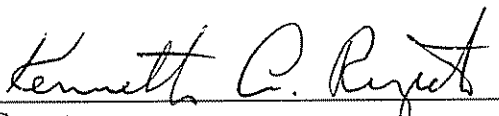
WHEREAS, WSAFCA is authorized and empowered under their organizing acts and other State laws to participate in, fund, and carry out flood control activities.

NOW, THEREFORE, BE IT RESOLVED AND ORDERED by the Board of Directors of the West Sacramento Area Flood Control Agency as follows:

1. **Recitals.** The above recitals are true and correct.
2. **Authorization.** The Board hereby authorizes the Board Chairman to enter into cost-share agreements with:
 - i) United States Army Corps of Engineers and Central Valley Flood Protection Board;
 - ii) Central Valley Flood Protection Board;For the West Sacramento General Reevaluation Report for an estimated total amount of \$1.25 million (\$1,250,000) to initiate the Report, and to sign subsequent amendments as necessary.
3. **Effective Date.** This resolution shall take effect from and after the date of its passage.

PASSED AND ADOPTED by the Board of Directors of the West Sacramento Area Flood Control Agency on November 13, 2008.

ATTEST:


Secretary


Chairman

LOCAL FEASIBILITY COST-SHARING AGREEMENT
BETWEEN
THE CENTRAL VALLEY FLOOD PROTECTION BOARD
AND
THE WEST SACRAMENTO AREA FLOOD CONTROL AGENCY
FOR THE
WEST SACRAMENTO, CALIFORNIA GENERAL REEVALUATION REPORT

This AGREEMENT is made and entered into this _____ day of _____, 2008, by and between The State of California, acting through the Central Valley Flood Protection Board (hereinafter the Board) and the West Sacramento Area Flood Control Agency (hereinafter WSAFCA).

RECITALS:

WHEREAS, the U.S. Army Corps of Engineers (Corps) is authorized to conduct a General Reevaluation Report (Study) of Construction of the West Sacramento, California Project, pursuant to the Water Resources Development Act of 1992, Public Law 102-580 and the Energy and Water Development Appropriation Act of 1999, Public Law 105-245, and the California Water Code Section 12670.2 (Stats. 1993, CH. 1107, Section 2); and

WHEREAS, prior to proceeding with such Study, the U.S. Army Corps of Engineers conducted general reconnaissance and determined that further planning in the nature of a Study should proceed; and

WHEREAS, the Board and WSAFCA are authorized and empowered under their organizing acts and other State laws to participate in, fund, plan for and carry out flood control activities; and

WHEREAS, on May 17, 1996 the Board executed a Project Cooperation Agreement (PCA) with the U.S. Army Corps of Engineers for construction of West Sacramento (authorized as Sacramento Metro Area); and

WHEREAS, on May 17, 1996 the Board executed a Local Project Cooperation (LPCA) Agreement with the West Sacramento Area Joint Powers Authority, comprised of Reclamation District No. 900, Reclamation District No. 537 and the City of West Sacramento; and

WHEREAS, the Board and WSAFCA concurrently by this AGREEMENT are entering into a Feasibility Cost Sharing Agreement (FCSA) for a feasibility investigation and Study of the West Sacramento, California Project with the Corps; and

WHEREAS, the Board and WSAFCA have agreed to be responsible for the functions of the Study Sponsors under the FCSA; and

WHEREAS, the Board and WSAFCA have agreed to the term of the Study and a maximum contribution described in the FCSA; and

WHEREAS, the Board and WSAFCA desire to specify their respective contributions and other obligations during the term of the Study.

NOW, THEREFORE, the Board and WSAFCA agree as follows:

1. Feasibility Cost Sharing Agreement. A copy of the [draft](#) FCSA is attached hereto as Exhibit A and incorporated by this reference. If the final FCSA executed between the Corps, Board, and WSAFCA differs from the draft FCSA, the Board and WSAFCA agree to renegotiate those provisions of this AGREEMENT that are affected by any changes in the final FCSA. This AGREEMENT shall be subject to all applicable provisions of the final FCSA.
2. Study Sponsor. The Board and WSAFCA have agreed to both perform the functions of the nonfederal Study Sponsor as stated in the FCSA.
3. Study Activities. Participation by the Board and WSAFCA in the Study is limited to the activities described in the Project Management Plan (PMP), an attachment to the FCSA.
4. Local Cost-Sharing.

A. Contributions.

- 1) The Board and WSAFCA agree that their contributions to the Study shall be as follows:

| Non-Federal Sponsor | Percent (Total Study) |
|---------------------|--------------------------|
| Board | 25 |
| WSAFCA | 25 |
| Total | 50 |

A portion of or all of the Non-Federal Sponsor contribution toward the Study as in the percentages shown in the table in (1) above may be made up as either cash or In-Kind Services as defined in the FCSA. WSAFCA In-Kind Services may be used as contributions after approval has been obtained from the Corps and the Board. Any WSAFCA In-Kind Services shall be subject to the requirements of the FCSA.

- 2) The Board and WSAFCA are to make any cash contributions payable directly to the Corps consistent with the FCSA. Checks shall be made payable to the Finance and Accounting Officer, USAED, Sacramento District, 1325 J Street, California 95814. WSAFCA shall provide notification of payment to the Board.
- 3) Each party to this AGREEMENT shall be obligated only for the percentage shown in the table in (1) above unless this AGREEMENT is amended in writing and signed by all parties.
- 4) At such time as the Corps notifies the Board and WSAFCA that payments are due under the FCSA, the Board and WSAFCA shall each pay or contribute its share directly to the Corps.
- 5) In the event that the Board does not secure any or all of the Board's share of Study costs during the term of this Agreement, WSAFCA may cover the short fall including the cost of any In-Kind Service unless WSAFCA decides to terminate pursuant to Paragraph 7; and the Board shall diligently pursue securing its share of such Study costs and, when secured, repay to WSAFCA any such short fall covered by WSAFCA, without interest thereon.

B. Final Accounting. The Board shall prepare and submit to WSAFCA a final accounting of the expenses and revenues of the Study at or prior to termination of the FCSA. At such time, any cash surplus remaining from the cash contributions provided for in paragraph A(3) shall be credited and returned to the Board and WSAFCA in proportion to their respective cash contributions added to their In Kind Services contributions. It is understood in making such final accounting that any cash payments to the Corps shall be deemed to have been made first from the principal of the cash contributions, and then from the earned interest only if the principal has been exhausted. Any earned interest remaining at the time of the final accounting shall be credited and returned to the Board and WSAFCA pro-rated according to the time the respective cash contributions were on deposit with the State's cash investment pool.

5. Disputes: WSAFCA and the Board shall continue with their responsibilities under this Agreement during any dispute.

6. Records and Reports.

A. The Board shall coordinate with the Corps in the maintenance of adequate records of the expenses and revenues of the Study, and such records shall be available for inspection and audit by the designated

representatives of WSAFCA within 14 days of any such records being compiled.

- B. The WSAFCA shall maintain adequate records of expenses and such records shall be available for inspection and audit by the Board for a period of three years after final payment under this AGREEMENT.
 - C. The Board shall furnish WSAFCA with copies of any financial or progress reports received from the Corps within 14 days of receipt of such by the Board.
 - D. Upon completion of the Study, the Board shall furnish WSAFCA two copies of the Corps' Study within 14 days of receipt of such by the Board.
7. Independent Contractor: WSAFCA, and its agents and employees, in the performance of this Agreement, shall act in an independent capacity and not as officers or employees or agents of the State.
8. Non-Discriminate Clause: During the performance of this Agreement, WSAFCA and its subcontractors shall not unlawfully discriminate, harass, or allow harassment against any employee or applicant for employment because of sex, race, color, ancestry, religious creed, national origin, physical disability (including HIV and AIDS), mental disability, medical condition (cancer), age (over 40), marital status, and denial of family care leave. WSAFCA and its subcontractors shall insure that the evaluation and treatment of their employees and applicants for employment are free from such discrimination and harassment. WSAFCA and its subcontractors shall comply with the provisions of the Fair Employment and Housing Act (Gov. Code §12990 (a-f) et seq.) and the applicable regulations promulgated thereunder (California Code of Regulations, Title 2, Section 7285 et seq.). The applicable regulations of the Fair Employment and Housing Commission implementing Government Code Section 12990 (a-f), set forth in Chapter 5 of Division 4 of Title 2 of the California Code of Regulations, are incorporated into this Agreement by reference and made a part hereof as if set forth in full. WSAFCA and its subcontractors shall give written notice of their obligations under this clause to labor organizations with which they have a collective bargaining or other Agreement.

WSAFCA shall include the nondiscrimination and compliance provisions of this clause in all subcontracts to perform work under the Agreement.

9. Child Support Compliance Act: For any Agreement in excess of \$100,000, WSAFCA acknowledges in accordance with Public Contract Code 7110, that:

- A. WSAFCA recognizes the importance of child and family support obligations and shall fully comply with all applicable state and federal laws relating to child and family support enforcement, including, but not limited to, disclosure of information and compliance with earnings assignment orders, as provided in Chapter 8 (commencing with section 5200) of Part 5 of Division 9 of the Family Code; and
 - B. WSAFCA, to the best of its knowledge is fully complying with the earnings assignment orders of all employees and is providing the names of all new employees to the New Hire Registry maintained by the California Employment Development Department.
- 10. Designated Representative. The designated representative by the Board for administration of this AGREEMENT shall be the Executive Officer of the Central Valley Flood Protection Board. The designated representative for WSAFCA for this AGREEMENT shall be the General Manager. The WSAFCA shall notify the Board in writing of their representatives for purposes of this AGREEMENT.
- 11. Term of Agreement. The term of this AGREEMENT shall be co-extensive with the term of the FCSA. For good cause, WSAFCA or the Board may exercise their independent rights, under the FCSA, to terminate or suspend the FCSA. "Good Cause" includes but is not limited to either of the parties' inability to renegotiate the provisions of this AGREEMENT that are affected by any changes to the Final FCSA, the Board's inability to secure the balance of its share of Study cost, and WSAFCA's inability to appropriate necessary funding for its share of the Study cost (subject, however, to the provisions of Section 4.A.5), hereof). If the FCSA is terminated, either party may terminate or suspend this AGREEMENT with 60 days' written notice. Upon termination of this AGREEMENT, all data and information generated as part of the Study shall be made available to both parties.
- 12. Department of General Services Approval. This AGREEMENT shall not be effective until approval by the Department of General Services has occurred.
- 13. Severability Clause. If any provision of this AGREEMENT is held invalid or unenforceable by any court of final jurisdiction, it is the intent of the parties that all other provisions of this AGREEMENT be construed to remain fully valid, enforceable and binding on the parties.
- 14. Notice. Any notice or other communication required under this AGREEMENT shall be in writing and shall be delivered in person to the other party or parties or deposited in the United States mail, postage prepaid, addressed to the other party or parties at the following addresses:

Jay Punia, Executive Officer (916) 574-0609
The Central Valley Flood Protection Board
3310 El Comino Ave., Rm. LL40
Sacramento, CA 95821

Ken Ruzich, General Manger (916) 371-1483
West Sacramento Area Flood Control Agency
1420 Merkley Avenue, #4
West Sacramento, CA 95691

Michael Bessette, Flood Protection Manager (916) 617-4645
City of West Sacramento
1110 West Capitol Avenue
West Sacramento, CA 95691

15. Successors and Assigns. This AGREEMENT shall be binding upon the successors and assigns of the respective parties.
16. Obligation of Future Appropriations. Nothing herein shall constitute nor be deemed to constitute an obligation of future appropriations by the Legislature of the State of California.

IN WITNESS WHEREOF, this AGREEMENT has been executed as of the day and year first above written.

THE CENTRAL VALLEY
FLOOD PROTECTION BOARD
STATE OF CALIFORNIA

APPROVED AS TO LEGAL FORM
AND SUFFICIENCY:

By _____
Benjamin F. Carter, President

By _____
Nancy Finch, Senior Staff Counsel

Date: _____

Date: _____

WEST SACRAMENTO AREA FLOOD
CONTROL AGENCY

APPROVED AS TO LEGAL FORM
AND SUFFICIENCY:

By _____
Ken Ruzich
General Manager

By _____
James M. Day Jr.
Attorney for the West
Sacramento Area Flood Control
Agency

Date: _____

Date: _____

AGREEMENT
BETWEEN
THE DEPARTMENT OF THE ARMY
AND
THE STATE OF CALIFORNIA, THE CENTRAL VALLEY FLOOD PROTECTION
BOARD AND THE WEST SACRAMENTO AREA FLOOD CONTROL AGENCY
FOR THE
WEST SACRAMENTO, CALIFORNIA PROJECT, GENERAL REEVALUATION
REPORT

THIS AGREEMENT is entered into this _____ day of _____, _____, by and between the Department of the Army (hereinafter the “Government”), represented by the District Engineer and The State of California, The Central Valley Flood Protection Board represented by its President and The West Sacramento Area Flood Control Agency, represented by its General Manager (hereinafter the “Non-Federal Sponsors”).

WITNESSETH, THAT:

WHEREAS, the U.S. Army Corps of Engineers is authorized to conduct a feasibility study of Construction of the West Sacramento, California Project, pursuant to the Water Resources Development Act of 1992, Public Law 102-580 and the Energy and Water Development Appropriation Act of 1999, Public Law 105-245;

WHEREAS, prior to proceeding with such feasibility study, the U.S. Army Corps of Engineers conducted a reconnaissance study and determined that further planning in the nature of a feasibility study should proceed;

WHEREAS, the Government and the Non-Federal Sponsors desire to enter into an agreement (hereinafter the “Agreement”) to conduct such feasibility study (hereinafter the “Study” as defined in Article I.A. of this Agreement);

WHEREAS, Section 105(a) of the Water Resources Development Act of 1986, Public Law 99-662, as amended (33 U.S.C. 2215(a)), specifies the cost-sharing requirements applicable to the *Study*;

WHEREAS, the Non-Federal Sponsors desire to provide in-kind contributions (hereinafter the “*non-Federal in-kind contributions*” as defined in Article I.K. of this Agreement) that are necessary to prepare the feasibility report and to receive credit for such contributions toward the amount of its required contribution for the *Study*;

WHEREAS, the Non-Federal Sponsors may provide up to 100 percent of its required contribution for the *Study* as *non-Federal in-kind contributions*;

WHEREAS, the Government and Non-Federal Sponsors have the full authority and capability to perform as hereinafter set forth and intend to cooperate in cost-sharing and

financing of the *Study* in accordance with the terms of this Agreement; and

WHEREAS, the Government and the Non-Federal Sponsors, in connection with this Agreement, desire to foster a partnering strategy and a working relationship between the Government and the Non-Federal Sponsors through a mutually developed formal strategy of commitment and communication embodied herein, which creates an environment where trust and teamwork prevent disputes, foster a cooperative bond between the Government and the Non-Federal Sponsors, and facilitate the successful *Study*.

NOW, THEREFORE, the Government and the Non-Federal Sponsors agree as follows:

ARTICLE I – DEFINITIONS

A. The term “*Study*” shall mean the activities and tasks required to identify and evaluate alternatives and the preparation of a decision document that, when appropriate, recommends a coordinated and implementable solution for flood damage reduction at West Sacramento, California, as generally described in the West Sacramento California **Feasibility Study** Project Management Plan, approved by COL Thomas C. Chapman on _____. The term includes the *non-Federal in-kind contributions* described in paragraph K. of this Article.

B. The term “*total study costs*” shall mean the sum of all costs incurred by the Non-Federal Sponsors and the Government in accordance with the terms of this Agreement directly related to performance of the *Study*. Subject to the provisions of this Agreement, the term shall include, but is not necessarily limited to: the Government’s costs of plan formulation and evaluation, including applicable economic, engineering, real estate, and environmental analyses; the Government’s costs of preparation of the decision document for the *Study*; the costs of the *non-Federal in-kind contributions* determined in accordance with Article II.E. of this Agreement; the Government’s costs of independent technical review and other review processes required by the Government; the Government’s costs of external peer review, if required.

C. The term “*study costs to be shared during the period of study*” shall mean the difference between *total study costs* and *excess study costs*.

D. The term “*excess study costs*” shall mean the difference between the most recent estimate of *total study costs* and the amount of *total study costs* specified in Article IV.A.1. of this Agreement, excluding any increase in *total study costs* that resulted from a change in Federal law or a change in the scope of the *Study* requested by the Non-Federal Sponsors or any increase in *total study costs* that otherwise was agreed upon in writing by the parties.

E. The term “*period of study*” shall mean the time from the effective date of this

Agreement to the date that:

1. the Assistant Secretary of the Army (Civil Works) submits the feasibility report to the Office of Management and Budget (OMB) for review for consistency with policies and programs of the Administration, if the project or project modification that is the subject of this *Study* will require further Congressional authorization to implement the recommended plan; or
2. the decision document for the *Study* is duly approved by the Government, if the project or project modification that is the subject of this *Study* will not require further Congressional authorization to implement the recommended plan; or
3. the date that this Agreement is terminated in accordance with Article IX of this Agreement.

F. The term “*financial obligations to be shared during the period of study*” shall mean the financial obligations of the Government and the costs for the *non-Federal in-kind contributions*, as determined by the Government, that result or would result in costs that are or would be included in *study costs to be shared during the period of study*.

G. The term “*non-Federal proportionate share*” shall mean the ratio of the sum of the costs included in *study costs to be shared during the period of study* for the *non-Federal in-kind contributions*, as determined by the Government, and the Non-Federal Sponsors’ total contribution of funds required by Article II.C.1.b. of this Agreement to *financial obligations to be shared during the period of study*, as projected by the Government.

H. The term “*Federal program funds*” shall mean funds provided by a Federal agency, other than the Department of the Army, plus any non-Federal contribution required as a matching share therefor.

I. The term “*fiscal year*” shall mean one year beginning on October 1 and ending on September 30.

J. The term “*PMP*” shall mean the project management plan, and any modifications thereto, developed by the Government, and agreed to by the Non-Federal Sponsors, that specifies the scope, cost, and schedule for *Study* activities and guides the performance of the *Study* through the *period of study*.

K. The term “*non-Federal in-kind contributions*” shall mean planning, supervision and administration, services, materials, supplies, and other in-kind services that are performed or provided by the Non-Federal Sponsors after the effective date of this Agreement in accordance with the *PMP* and that are necessary for performance of the *Study*.

ARTICLE II - OBLIGATIONS OF THE GOVERNMENT AND THE NON-FEDERAL SPONSORS

A. The Government, subject to receiving funds appropriated by the Congress of the United States (hereinafter the “Congress”) and using those funds and funds provided by the Non-Federal Sponsors, expeditiously shall conduct the *Study*, applying those procedures usually applied to Federal projects, in accordance with Federal laws, regulations, and policies. The Non-Federal Sponsors expeditiously shall perform or provide the *non-Federal in-kind contributions* in accordance with applicable Federal laws, regulations, and policies.

1. The Government shall not issue the solicitation for the first contract for the *Study* or commence the *Study* using the Government’s own forces until the Non-Federal Sponsors have confirmed in writing its willingness to proceed with the *Study*.

2. To the extent possible, the Government and the Non-Federal Sponsors shall conduct the *Study* in accordance with the *PMP*.

3. The Government shall afford the Non-Federal Sponsors the opportunity to review and comment on all products that are developed by contract or by Government personnel during the *period of study*. The Government shall consider in good faith the comments of the Non-Federal Sponsors, but the final approval of all *Study* products shall be exclusively within the control of the Government.

4. The Government shall afford the Non-Federal Sponsors the opportunity to review and comment on the solicitations for all Government contracts, including relevant scopes of work, prior to the Government’s issuance of such solicitations. To the extent possible, the Government shall afford the Non-Federal Sponsors the opportunity to review and comment on all proposed contract modifications, including change orders. In any instance where providing the Non-Federal Sponsors with notification of a contract modification is not possible prior to execution of the contract modification, the Government shall provide such notification in writing at the earliest date possible. To the extent possible, the Government also shall afford the Non-Federal Sponsors the opportunity to review and comment on all contract claims prior to resolution thereof. The Government shall consider in good faith the comments of the Non-Federal Sponsors, but the contents of solicitations, award of contracts or commencement of work on the *Study* using the Government’s own forces, execution of contract modifications, resolution of contract claims, and performance of all work on the *Study*, except for the *non-Federal in-kind contributions*, shall be exclusively within the control of the Government.

5. At the time the U.S. Army Engineer, Sacramento District (hereinafter the “District Engineer”) furnishes the contractor with the Government’s Written Notice of Acceptance of Completed Work for each contract awarded by the Government for the *Study*, the District Engineer shall furnish a copy thereof to the Non-Federal Sponsors.

6. The Non-Federal Sponsors shall afford the Government the opportunity to review and comment on the solicitations for all contracts for the *non-Federal in-kind contributions*, including relevant scopes of work, prior to the Non-Federal Sponsors' issuance of such solicitations. To the extent possible, the Non-Federal Sponsors shall afford the Government the opportunity to review and comment on all proposed contract modifications, including change orders. In any instance where providing the Government with notification of a contract modification is not possible prior to execution of the contract modification, the Non-Federal Sponsors shall provide such notification in writing at the earliest date possible. To the extent possible, the Non-Federal Sponsors also shall afford the Government the opportunity to review and comment on all contract claims prior to resolution thereof. The Non-Federal Sponsors shall consider in good faith the comments of the Government but the contents of solicitations, award of contracts or commencement of work on the *Study* using the Non-Federal Sponsors' own forces, execution of contract modifications, resolution of contract claims, and performance of all work on the *non-Federal in-kind contributions* shall be exclusively within the control of the Non-Federal Sponsors.

7. At the time the Non-Federal Sponsors furnish a contractor with a notice of acceptance of completed work for each contract awarded by the Non-Federal Sponsors for the *non-Federal in-kind contributions*, the Non-Federal Sponsors shall furnish a copy thereof to the Government.

8. Notwithstanding paragraph A.4. and paragraph A.6., if the award of any contract for work on the *Study*, or continuation of work on the *Study* using the Government's or the Non-Federal Sponsors' own forces, would result in *excess study costs*, the Government and the Non-Federal Sponsors agree to defer award of that contract, award of all remaining contracts for work on the *Study*, and continuation of work on the *Study* using the Government's or the Non-Federal Sponsors' own forces until such time as the Government and the Non-Federal Sponsor agree in writing to proceed with further contract awards for the *Study* or the continuation of work on the *Study* using the Government's or the Non-Federal Sponsors' own forces, but in no event shall the award of contracts or the continuation of work on the *Study* using the Government's or the Non-Federal Sponsors' own forces be deferred for more than six months. If the Government and the Non-Federal Sponsors agree to not proceed or fail to reach agreement on proceeding with further contract awards for the *Study*, or the continuation of work on the *Study* using the Government's or the Non-Federal Sponsors' own forces, the parties shall terminate this Agreement and proceed in accordance with Article IX.E. of this Agreement.

9. As of the effective date of this Agreement, \$500,000 of Federal funds is currently projected to be available for the *Study*. The Government makes no commitment to request Congress to provide additional Federal funds for the *Study*. Further, the Government's financial participation in the *Study* is limited to the Federal funds that the Government makes available to the *Study*.

B. The Government shall allocate *total study costs* between *study costs to be*

shared during the period of study and excess study costs.

C. The Non-Federal Sponsors shall contribute 50 percent of *study costs to be shared during the period of study* in accordance with the provisions of this paragraph.

1. The Non-Federal Sponsors shall provide a contribution of funds as determined below:

a. If the Government projects at any time that the collective value of the Non-Federal Sponsors' contributions under Article III and Article VI of this Agreement will be less than the Non-Federal Sponsors' required share of 50 percent of *study costs to be shared during the period of study*, the Government shall determine the amount of funds that would be necessary to meet the Non-Federal Sponsors' required share prior to any consideration of the credit the Government projects will be afforded for the *non-Federal in-kind contributions* pursuant to paragraph F. of this Article.

b. The Non-Federal Sponsors shall provide funds in the amount determined by this paragraph in accordance with Article IV.B. of this Agreement. To determine the contribution of funds the Non-Federal Sponsors shall provide, the Government shall reduce the amount determined in accordance with paragraph C.1.a. of this Article by the amount of credit the Government projects will be afforded for the *non-Federal in-kind contributions* pursuant to paragraph F. of this Article

2. The Government, subject to the availability of funds and as limited by paragraph G. of this Article, shall refund or reimburse to the Non-Federal Sponsors any contributions in excess of 50 percent of *study costs to be shared during the period of study* if the Government determines at any time that the collective value of the following contributions has exceeded 50 percent of *study costs to be shared during the period of study*: (a) the value of the Non-Federal Sponsors' contributions under paragraph C.1.b. of this Article; (b) the amount of credit to be afforded for the *non-Federal in-kind contributions* pursuant to paragraph F. of this Article; and (c) the value of the Non-Federal Sponsors' contributions under Article III and Article VI of this Agreement.

D. The Non-Federal Sponsors shall contribute 50 percent of *excess study costs* in accordance with the provisions of this paragraph.

1. The Government shall determine the amount of funds that would be necessary to meet the Non-Federal Sponsors' required share prior to any consideration of the credit the Government projects will be afforded for the *non-Federal in-kind contributions* pursuant to paragraph F. of this Article.

2. The Non-Federal Sponsors shall provide funds in the amount determined by this paragraph in accordance with Article IV.C.3. of this Agreement. To determine the contribution of funds the Non-Federal Sponsors shall provide, the Government shall reduce the amount determined in accordance with paragraph D.1. of this Article by the amount of credit the Government projects will be afforded for the *non-*

Federal in-kind contributions pursuant to paragraph F. of this Article.

E. The Government shall determine and include in *total study costs* any costs incurred by the Non-Federal Sponsors for *non-Federal in-kind contributions*, subject to the conditions and limitations of this paragraph. The Non-Federal Sponsors in a timely manner shall provide the Government with such documents as are sufficient to enable the Government to determine the amount of costs to be included in *total study costs* for *non-Federal in-kind contributions*.

1. Acceptance by the Government of *non-Federal in-kind contributions* shall be subject to a review by the Government to verify that all economic, engineering, real estate, and environmental analyses or other items performed or provided as *non-Federal in-kind contributions* are accomplished in a satisfactory manner and in accordance with applicable Federal laws, regulations, and policies, and to verify that all analyses, services, materials, supplies, and other in-kind services provided as *non-Federal in-kind contributions* are necessary for the *Study*.

2. The Non-Federal Sponsors' costs for *non-Federal in-kind contributions* that may be eligible for inclusion in *total study costs* pursuant to this Agreement shall be subject to an audit in accordance with Article VI.C. of this Agreement to determine the reasonableness, allocability, and allowability of such costs.

3. The Non-Federal Sponsors' costs for *non-Federal in-kind contributions* that may be eligible for inclusion in *total study costs* pursuant to this Agreement are not subject to interest charges, nor are they subject to adjustment to reflect changes in price levels between the time the *non-Federal in-kind contributions* are provided and the time the costs are included in *total study costs*.

4. The Government shall not include in *total study costs* any costs for *non-Federal in-kind contributions* paid by the Non-Federal Sponsors using *Federal program funds* unless the Federal agency providing the Federal portion of such funds verifies in writing that expenditure of such funds for such purpose is expressly authorized by Federal law.

5. The Government shall not include in *total study costs* any costs for *non-Federal in-kind contributions* in excess of the Government's estimate of the costs of the *non-Federal in-kind contributions* if the services, materials, supplies, and other in-kind services had been provided by the Government.

F. The Government, in accordance with this paragraph, shall afford credit toward the amount of funds determined in accordance with paragraph C.1.a. and paragraph D.1. of this Article for the costs of the *non-Federal in-kind contributions* determined in accordance with paragraph E. of this Article. The credit for *non-Federal in-kind contributions* first shall be afforded toward the amount of funds determined in accordance with paragraph C.1.a. of this Article. If the amount of credit afforded exceeds the amount of funds determined in accordance with paragraph C.1.a. of this Article, the remaining portion

of credit to be afforded shall be afforded toward the amount of funds determined in accordance with paragraph D.1. of this Article. However, the maximum amount of credit that can be afforded for the *non-Federal in-kind contributions* shall not exceed the least of the following amounts as determined by the Government: the amount of funds determined in accordance with paragraph C.1.a. and paragraph D.1. of this Article; the costs of the *non-Federal in-kind contributions* determined in accordance with paragraph E. of this Article; or 50 percent of *total study costs*.

G. Notwithstanding any other provision of this Agreement, the Non-Federal Sponsors shall not be entitled to reimbursement of any costs of *non-Federal in-kind contributions* determined in accordance with paragraph E. of this Article and included in *total study costs* that exceed the amount of credit afforded for the *non-Federal in-kind contributions* determined in accordance with paragraph F. of this Article and the Non-Federal Sponsors shall be responsible for 100 percent of all costs of *non-Federal in-kind contributions* included in *total study costs* that exceed the amount of credit afforded.

H. Upon conclusion of the *period of study*, the Government shall conduct an accounting, in accordance with Article IV.C. of this Agreement, and furnish the results to the Non-Federal Sponsors.

I. The Non-Federal Sponsors shall not use *Federal program funds* to meet any of its obligations for the *Study* under this Agreement unless the Federal agency providing the Federal portion of such funds verifies in writing that expenditure of such funds for such purpose is expressly authorized by Federal law.

J. This Agreement shall not be construed as obligating either party to implement a project. Whether the Government supports a project authorization, if authorization is required, and budgets for implementation of the project depends upon, among other things, the outcome of the *Study* and whether the proposed solution is consistent with the Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies and with the budget priorities of the Administration.

ARTICLE III - STUDY COORDINATION TEAM

A. To provide for consistent and effective communication, the Non-Federal Sponsors and the Government, not later than 30 calendar days after the effective date of this Agreement, shall appoint named senior representatives to a Study Coordination Team. Thereafter, the Study Coordination Team shall meet regularly until the end of the *period of study*. The Government's Project Manager and a counterpart named by the Non-Federal Sponsors shall co-chair the Study Coordination Team.

B. The Government's Project Manager and the Non-Federal Sponsors' counterpart shall keep the Study Coordination Team informed of the progress of the *Study* and of significant pending issues and actions, and shall seek the views of the Study Coordination Team on matters that the Study Coordination Team generally oversees.

C. Until the end of the *period of study*, the Study Coordination Team shall generally oversee the *Study*, including matters related to: plan formulation and evaluation, including applicable economic, engineering, real estate, and environmental analyses; scheduling of reports and work products; independent technical review and other review processes required by the Government; external peer review, if required; completion of all necessary environmental coordination and documentation; contract awards and modifications; contract costs; the Government's cost projections; the performance of and scheduling for the *non-Federal in-kind contributions*; determination of anticipated future requirements for real property and relocation requirements and performance of operation, maintenance, repair, rehabilitation, and replacement of the proposed project including anticipated requirements for permits; and other matters related to the *Study*. This oversight of the *Study* shall be consistent with the *PMP*.

D. The Study Coordination Team may make recommendations to the District Engineer on matters related to the *Study* that the Study Coordination Team generally oversees, including suggestions to avoid potential sources of dispute. The Government in good faith shall consider the recommendations of the Study Coordination Team. The Government, having the legal authority and responsibility for performance of the *Study* except for the *non-Federal in-kind contributions*, has the discretion to accept or reject, in whole or in part, the Study Coordination Team's recommendations. On matters related to the *non-Federal in-kind contributions*, that the Study Coordination Team generally oversees, the Study Coordination Team may make recommendations to the Non-Federal Sponsors including suggestions to avoid potential sources of dispute. The Non-Federal Sponsors in good faith shall consider the recommendations of the Study Coordination Team. The Non-Federal Sponsors, having the legal authority and responsibility for the *non-Federal in-kind contributions*, have the discretion to accept or reject, in whole or in part, the Study Coordination Team's recommendations except as otherwise required by the provisions of this Agreement, including compliance with applicable Federal, State, or local laws or regulations.

E. The Non-Federal Sponsors' costs of participation in the Study Coordination Team shall be included in *total study costs* and shared in accordance with the provisions of this Agreement, subject to an audit in accordance with Article VI.C. of this Agreement to determine reasonableness, allocability, and allowability of such costs. The Government's costs of participation in the Study Coordination Team shall be included in *total study costs* and shared in accordance with the provisions of this Agreement.

ARTICLE IV - METHOD OF PAYMENT

A. In accordance with the provisions of this paragraph, the Government shall maintain current records and provide to the Non-Federal Sponsors current projections of costs, financial obligations, the contributions provided by the parties, the costs included in *total study costs* for the *non-Federal in-kind contributions* determined in accordance with Article II.E. of this Agreement, and the credit to be afforded for the *non-Federal in-kind contributions* pursuant to Article II.F. of this Agreement.

1. As of the effective date of this Agreement, *total study costs* are projected to be \$5,500,000; the amount of funds determined in accordance with Article II.C.1.a. of this Agreement is projected to be \$ [REDACTED]; the costs included in *total study costs* for the *non-Federal in-kind contributions* determined in accordance with Article II.E. of this Agreement are projected to be \$ [REDACTED]; the credit to be afforded for the *non-Federal in-kind contributions* pursuant to Article II.F. of this Agreement is projected to be \$ [REDACTED]; the Non-Federal Sponsors' contribution of funds required by Article II.C.1.b. of this Agreement is projected to be \$2,750,000; and the *non-Federal proportionate share* is projected to be 50 percent. These amounts and percentage are estimates subject to adjustment by the Government, after consultation with the Non-Federal Sponsors, and are not to be construed as the total financial responsibilities of the Government and the Non-Federal Sponsors.

2. By January 2009 and by each quarterly anniversary thereof until the conclusion of the *period of study* and resolution of all relevant claims and appeals, the Government shall provide the Non-Federal Sponsors with a report setting forth all contributions provided to date and the current projections of the following: *total study costs*; *study costs to be shared during the period of study*; the amount of funds determined in accordance with Article II.C.1.a. of this Agreement; the Non-Federal Sponsors' contribution of funds required by Article II.C.1.b. of this Agreement; *excess study costs*; the amount of funds determined in accordance with Article II.D.1. of this Agreement; the Non-Federal Sponsors' contribution of funds required by Article II.D.2. of this Agreement; the costs included in *total study costs* for the *non-Federal in-kind contributions* determined in accordance with Article II.E. of this Agreement; the credit to be afforded for the *non-Federal in-kind contributions* pursuant to Article II.F. of this Agreement; the total contribution of funds required from the Non-Federal Sponsors for the upcoming contract and upcoming *fiscal year*;;; and the *non-Federal proportionate share*.

B. The Non-Federal Sponsors shall provide the contribution of funds required by Article II.C.1.b. of this Agreement in accordance with the provisions of this paragraph.

1. Not less than 30 calendar days prior to the scheduled date for issuance of the solicitation for the first contract for work on the *Study* or commencement of work on the *Study* using the Government's own forces, the Government shall notify the Non-Federal Sponsors in writing of such scheduled date and the funds the Government determines to be required from the Non-Federal Sponsors to meet: (a) the *non-Federal proportionate share of financial obligations to be shared during the period of study* incurred prior to the commencement of the *period of study*; (b) the projected *non-Federal proportionate share of financial obligations to be shared during the period of study* to be incurred for such contract; and (c) the projected *non-Federal proportionate share of financial obligations to be shared during the period of study* using the Government's own forces through the quarter. Not later than such scheduled date, the Non-Federal Sponsors shall provide the Government with the full amount of such required funds by delivering a check payable to "FAO, USAED, Sacramento District, L2" to the District Engineer, or

verifying to the satisfaction of the Government that the Non-Federal Sponsors have deposited such required funds in an escrow or other account acceptable to the Government, with interest accruing to the Non-Federal Sponsors, or by presenting the Government with an irrevocable letter of credit acceptable to the Government for such required funds, or by providing an Electronic Funds Transfer of such required funds in accordance with procedures established by the Government.

2. Thereafter, until the work on the *Study* is complete, the Government shall notify the Non-Federal Sponsors in writing of the funds the Government determines to be required from the Non-Federal Sponsors, and the Non-Federal Sponsors shall provide such funds in accordance with the provisions of this paragraph.

a. The Government shall notify the Non-Federal Sponsors in writing, no later than 60 calendar days prior to the scheduled date for issuance of the solicitation for each remaining contract for work on the *Study*, of the funds the Government determines to be required from the Non-Federal Sponsors to meet the projected *non-Federal proportionate share of financial obligations to be shared during the period of study* to be incurred for such contract. No later than such scheduled date, the Non-Federal Sponsors shall make the full amount of such required funds available to the Government through any of the payment mechanisms specified in paragraph B.1. of this Article.

b. The Government shall notify the Non-Federal Sponsors in writing, no later than 60 calendar days prior to the beginning of each quarter in which the Government projects that it will make *financial obligations to be shared during the period of study* using the Government's own forces, of the funds the Government determines to be required from the Non-Federal Sponsors to meet the projected *non-Federal proportionate share of financial obligations to be shared during the period of study* using the Government's own forces for that quarter. No later than 30 calendar days prior to the beginning of that quarter, the Non-Federal Sponsors shall make the full amount of such required funds for that quarter available to the Government through any of the payment mechanisms specified in paragraph B.1. of this Article.

3. The Government shall draw from the funds provided by the Non-Federal Sponsors such sums as the Government deems necessary when considered with any credit the Government projects will be afforded for the *non-Federal in-kind contributions* pursuant to Article II.F. of this Agreement, to cover: (a) the *non-Federal proportionate share of financial obligations to be shared during the period of study* incurred prior to the commencement of the *period of study*; and (b) the *non-Federal proportionate share of financial obligations to be shared during the period of study* as *financial obligations to be shared during the period of study* are incurred. If at any time the Government determines that additional funds will be needed from the Non-Federal Sponsors to cover the Non-Federal Sponsors' share of such financial obligations for the current contract or to cover the Non-Federal Sponsors' share of such financial obligations for work performed using the Government's own forces in the current quarter, the Government shall notify the Non-Federal Sponsors in writing of the additional funds

required and provide an explanation of why additional funds are required. Within 60 calendar days from receipt of such notice, the Non-Federal Sponsors shall provide the Government with the full amount of such additional required funds through any of the payment mechanisms specified in paragraph B.1. of this Article.

C. Upon conclusion of the *period of study* and resolution of all relevant claims and appeals, the Government shall conduct a final accounting and furnish the Non-Federal Sponsors with written notice of the results of such final accounting. If outstanding relevant claims and appeals prevent a final accounting from being conducted in a timely manner, the Government shall conduct an interim accounting and furnish the Non-Federal Sponsors with written notice of the results of such interim accounting. Once all outstanding relevant claims and appeals are resolved, the Government shall amend the interim accounting to complete the final accounting and furnish the Non-Federal Sponsors with written notice of the results of such final accounting. The interim or final accounting, as applicable, shall determine *total study costs*, *study costs to be shared during the period of study*, and *excess study costs*. In addition, the interim or final accounting, as applicable, shall determine each party's required share thereof, and each party's total contributions thereto as of the date of such accounting.

1. Should the interim or final accounting, as applicable, show that the Non-Federal Sponsors' total required share of *study costs to be shared during the period of study* exceeds the Non-Federal Sponsors' total contributions provided thereto, the Non-Federal Sponsors, no later than 90 calendar days after receipt of written notice from the Government, shall make a payment to the Government in an amount equal to the difference by delivering a check payable to "FAO, USAED, Sacramento District, L2" to the District Engineer or by providing an Electronic Funds Transfer in accordance with procedures established by the Government.

2. Should the interim or final accounting, as applicable, show that the total contributions provided by the Non-Federal Sponsors for *study costs to be shared during the period of study* exceed the Non-Federal Sponsors' total required share thereof, the Government, subject to the availability of funds and as limited by Article II.G. of this Agreement, shall refund or reimburse the excess amount to the Non-Federal Sponsors within 90 calendar days of the date of completion of such accounting. In the event the Non-Federal Sponsors are due a refund or reimbursement and funds are not available to refund or reimburse the excess amount to the Non-Federal Sponsors, the Government shall seek such appropriations as are necessary to make the refund or reimbursement.

3. Should the final accounting show that the Non-Federal Sponsors' total required share of *excess study costs* exceeds the Non-Federal Sponsors' total contributions provided thereto the Non-Federal Sponsors, within the applicable time frame described below, shall make a payment to the Government in an amount equal to the difference by delivering a check payable to "FAO, USAED, Sacramento District L2" to the District Engineer or by providing an Electronic Funds Transfer in accordance with procedures established by the Government.

a. If the project or project modification that is the subject of this *Study* will require further Congressional authorization to implement the recommended plan and:

i. the project or project modification is authorized for construction – then the payment shall be made no later than the date on which a Project Cooperation Agreement is entered into for the project or project modification; or

ii. the project or project modification is not authorized for construction within 5 years after the date of the final Report of the Chief of Engineers concerning the project or project modification – then the payment shall be made no later than 5 years after the date of the final Report of the Chief of Engineers; or

iii. the *Study* is terminated and the project or project modification is not authorized for construction - then the payment shall be made no later than 2 years after such termination date.

b. If the project or project modification that is the subject of this *Study* will not require further Congressional authorization to implement the recommended plan, then the payment shall be made:

i. no later than the date on which a Project Cooperation Agreement is entered into for the project or project modification; or

ii. no later than 5 years after the date the decision document is duly approved by the Government; or

iii. no later than 2 years after the date of the termination of the *Study*, whichever is earliest.

ARTICLE V - DISPUTE RESOLUTION

As a condition precedent to a party bringing any suit for breach of this Agreement, that party must first notify the other party in writing of the nature of the purported breach and seek in good faith to resolve the dispute through negotiation. If the parties cannot resolve the dispute through negotiation, they may agree to a mutually acceptable method of non-binding alternative dispute resolution with a qualified third party acceptable to both parties. Each party shall pay an equal share of any costs for the services provided by such a third party as such costs are incurred. The existence of a dispute shall not excuse the parties from performance pursuant to this Agreement.

ARTICLE VI - MAINTENANCE OF RECORDS AND AUDIT

A. Not later than 60 calendar days after the effective date of this Agreement, the

Government and the Non-Federal Sponsors shall develop procedures for keeping books, records, documents, or other evidence pertaining to costs and expenses incurred pursuant to this Agreement. These procedures shall incorporate, and apply as appropriate, the standards for financial management systems set forth in the Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments at 32 C.F.R. Section 33.20. The Government and the Non-Federal Sponsors shall maintain such books, records, documents, or other evidence in accordance with these procedures and for a minimum of three years after completion of the accounting for which such books, records, documents, or other evidence were required. To the extent permitted under applicable Federal laws and regulations, the Government and the Non-Federal Sponsors shall each allow the other to inspect such books, records, documents, or other evidence.

B. In accordance with 32 C.F.R. Section 33.26, the Non-Federal Sponsors are responsible for complying with the Single Audit Act Amendments of 1996 (31 U.S.C. 7501-7507), as implemented by OMB Circular No. A-133 and Department of Defense Directive 7600.10. Upon request of the Non-Federal Sponsors and to the extent permitted under applicable Federal laws and regulations, the Government shall provide to the Non-Federal Sponsors and independent auditors any information necessary to enable an audit of the Non-Federal Sponsors' activities under this Agreement. The costs of any non-Federal audits performed in accordance with this paragraph shall be allocated in accordance with the provisions of OMB Circulars A-87 and A-133, and such costs as are allocated to the *Study* shall be included in *total study costs* and shared in accordance with the provisions of this Agreement.

C. In accordance with 31 U.S.C. 7503, the Government may conduct audits in addition to any audit that the Non-Federal Sponsors are required to conduct under the Single Audit Act Amendments of 1996. Any such Government audits shall be conducted in accordance with Government Auditing Standards and the cost principles in OMB Circular No. A-87 and other applicable cost principles and regulations. The costs of Government audits performed in accordance with this paragraph shall be included in *total study costs* and shared in accordance with the provisions of this Agreement.

ARTICLE VII - FEDERAL AND STATE LAWS

In the exercise of their respective rights and obligations under this Agreement, the Non-Federal Sponsors and the Government shall comply with all applicable Federal and State laws and regulations, including, but not limited to: Section 601 of the Civil Rights Act of 1964, Public Law 88-352 (42 U.S.C. 2000d) and Department of Defense Directive 5500.11 issued pursuant thereto and Army Regulation 600-7, entitled "Nondiscrimination on the Basis of Handicap in Programs and Activities Assisted or Conducted by the Department of the Army".

ARTICLE VIII - RELATIONSHIP OF PARTIES

A. In the exercise of their respective rights and obligations under this Agreement, the Government and the Non-Federal Sponsors each act in an independent capacity, and neither is to be considered the officer, agent, or employee of the other.

B. In the exercise of its rights and obligations under this Agreement, neither party shall provide, without the consent of the other party, any contractor with a release that waives or purports to waive any rights the other party may have to seek relief or redress against that contractor either pursuant to any cause of action that the other party may have or for violation of any law.

ARTICLE IX - TERMINATION OR SUSPENSION

A. Prior to conclusion of the *period of study*, upon 30 calendar days written notice to the other party, either party may elect without penalty to terminate this Agreement or to suspend future performance under this Agreement. In the event that either party elects to suspend future performance under this Agreement pursuant to this paragraph, such suspension shall remain in effect until either the Government or the Non-Federal Sponsors elect to terminate this Agreement.

B. If at any time the Non-Federal Sponsors fail to fulfill its obligations under this Agreement, the Assistant Secretary of the Army (Civil Works) shall terminate this Agreement or suspend future performance under this Agreement unless he determines that continuation of performance of the *Study* is in the interest of the United States or is necessary in order to satisfy agreements with any other non-Federal interests in connection with the *Study*.

C. In the event the Government projects that the amount of Federal funds the Government will make available to the *Study* through the then-current *fiscal year*, or the amount of Federal funds the Government will make available for the *Study* through the upcoming *fiscal year*, is not sufficient to meet the Federal share of *total study costs* that the Government projects to be incurred through the then-current or upcoming *fiscal year*, as applicable, the Government shall notify the Non-Federal Sponsors in writing of such insufficiency of funds and of the date the Government projects that the Federal funds that will have been made available to the *Study* will be exhausted. Upon the exhaustion of Federal funds made available by the Government to the *Study*, future performance under this Agreement shall be suspended. Such suspension shall remain in effect until such time that the Government notifies the Non-Federal Sponsors in writing that sufficient Federal funds are available to meet the Federal share of *total study costs* the Government projects to be incurred through the then-current or upcoming *fiscal year*, or the Government or the Non-Federal Sponsors elects to terminate this Agreement.

D. In the event that one or more of the Non-Federal Sponsors elect to terminate its responsibilities under this Agreement, and the remaining Non-Federal Sponsors elect to continue to participate in the *Study*, the Government shall negotiate in good faith with the remaining Non-Federal Sponsors to effect a timely and productive conclusion to that

portion of the *Study* pertaining to the area of statutory authority applicable for the remaining Non-Federal Sponsors. The Government shall prepare a revised *PMP* and revised estimate of *total study costs* to complete that portion of the *Study* of interest to the remaining Non-Federal Sponsors. If the remaining Non-Federal Sponsors elects to complete the *Study*, this Agreement shall be amended to reflect the negotiated revisions to the scope of the *Study* defined in Article I.A. of this Agreement and the estimate of *total study costs* in Article IV.A.1. of this Agreement. Amendments to this Agreement made pursuant to this paragraph shall reflect credits for the contribution of funds and *non-Federal in-kind contributions* provided previously by all of the *Study* sponsors and shall reflect task reductions made as a result of withdrawal of any *Study* sponsor.

E. In the event that this Agreement is terminated pursuant to this Article, the parties shall conclude their activities relating to the *Study* and conduct an accounting in accordance with Article IV.C. of this Agreement. To provide for this eventuality, the Government may reserve a percentage of total Federal funds made available for the *Study* and an equal percentage of the total funds contributed by the Non-Federal Sponsors in accordance with Article II.C.1.b. of this Agreement as a contingency to pay costs of termination, including any costs of resolution of contract claims and contract modifications. Upon termination of this Agreement, all data and information generated as part of the *Study* shall be made available to the parties to the Agreement.

F. Any termination of this Agreement or suspension of future performance under this Agreement in accordance with this Article shall not relieve the parties of liability for any obligation previously incurred. Any delinquent payment owed by the Non-Federal Sponsors shall be charged interest at a rate, to be determined by the Secretary of the Treasury, equal to 150 per centum of the average bond equivalent rate of the 13 week Treasury bills auctioned immediately prior to the date on which such payment became delinquent, or auctioned immediately prior to the beginning of each additional 3 month period if the period of delinquency exceeds 3 months.

ARTICLE X - NOTICES

A. Any notice, request, demand, or other communication required or permitted to be given under this Agreement shall be deemed to have been duly given if in writing and delivered personally or sent by telegram or mailed by first-class, registered, or certified mail, as follows:

If to the Non-Federal Sponsors:

Jay S. Punia
Executive Officer
The Central Valley Flood Protection Board
3310 El Camino Ave., Room LL40
Sacramento, CA 95821

Kenneth A. Ruzich
General Manager
The West Sacramento Area Flood Control Agency
1420 Merkley Avenue, #4
West Sacramento, CA 95691

If to the Government:

Sacramento District Engineer
1325 J Street
Sacramento, CA 95831

B. A party may change the address to which such communications are to be directed by giving written notice to the other party in the manner provided in this Article.

C. Any notice, request, demand, or other communication made pursuant to this Article shall be deemed to have been received by the addressee at the earlier of such time as it is actually received or seven calendar days after it is mailed.

ARTICLE XI - CONFIDENTIALITY

To the extent permitted by the laws governing each party, the parties agree to maintain the confidentiality of exchanged information when requested to do so by the providing party.

ARTICLE XII - THIRD PARTY RIGHTS, BENEFITS, OR LIABILITIES

Nothing in this Agreement is intended, nor may be construed, to create any rights, confer any benefits, or relieve any liability, of any kind whatsoever in any third person not party to this Agreement.

ARTICLE XIII - OBLIGATIONS OF FUTURE APPROPRIATIONS

A. Nothing herein shall constitute, nor be deemed to constitute, an obligation of future appropriations by the Legislature of the State of California.

B. The Non-Federal Sponsors intend to fulfill its obligations under this Agreement. The Non-Federal Sponsors shall include in its budget request or otherwise propose appropriations of funds in amounts sufficient to fulfill these obligations for that year, and shall use all reasonable and lawful means to secure those appropriations. The Non-Federal Sponsors reasonably believe that funds in amounts sufficient to fulfill these obligations lawfully can and will be appropriated and made available for this purpose. In

the event funds are not appropriated in amounts sufficient to fulfill these obligations, the Non-Federal Sponsors shall use its best efforts to satisfy any requirements for payments or contributions of funds under this Agreement from any other source of funds legally available for this purpose. Further, if the Non-Federal Sponsors are unable to fulfill these obligations, the Government may exercise any legal rights it has to protect the Government's interests related to this Agreement.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement, which shall become effective upon the date it is signed by the District Engineer for the Army Corps of Engineers, Sacramento District.

DEPARTMENT OF THE ARMY

THE STATE OF CALIFORNIA, THE
CENTRAL VALLEY FLOOD
PROTECTION BOARD AND THE WEST
SACRAMENTO AREA FLOOD
CONTROL AGENCY

BY: _____
COL Thomas C. Chapman
District Engineer
Sacramento District

BY: _____
Benjamin F. Carter
President
The Central Valley Flood Protection
Board

DATE: _____

DATE: _____

BY: _____
Kenneth A. Ruzich
General Manager
The West Sacramento Area Flood
Control Agency

DATE: _____

CERTIFICATE OF AUTHORITY (non-Federal Sponsor)

I, the undersigned, do hereby certify that I am the principal legal officer of the State of California, acting by and through its Central Valley Flood Protection Board, a legally constituted public body with full authority and legal capability to perform the terms of the Agreement among the Department of the Army, the CENTRAL VALLEY FLOOD PROROTECTION BOARD and the WEST SACRAMENTO AREA FLOOD CONTROL AGENCY in connection with the feasibility study for the WEST SACRAMENTO, CALIFORNIA PROJECT, GENERAL REEVALUATION REPORT and to pay damages, if necessary, in the event of the failure to perform in accordance with the terms of this Agreement, and that the persons who have executed this Agreement on behalf of the STATE OF CALIFORNIA, acting by and through its CENTRAL VALLEY FLOOD PROTECTION BOARD, have acted within their statutory authority.

IN WITNESS WHEREOF, I have made and executed this certification on this

_____ day of _____ 2008.

EDMUND G. BROWN JR.
California Attorney General

By _____
Virginia Cahill, Deputy Attorney General

Attorneys for the Central Valley Flood Protection Board

CERTIFICATE OF AUTHORITY (Local Sponsor)

I, James M. Day Jr., do hereby certify that I am the principal legal officer of the WEST SACRAMENTO AREA FLOOD CONTROL AGENCY, that the WEST SACRAMENTO AREA FLOOD CONTROL AGENCY is a legally constituted public body with full authority and legal capability to perform the terms of the Agreement among the Department of the Army, the STATE OF CALIFORNIA, acting by and through the CENTRAL VALLEY FLOOD PROTECTION BOARD, and the WEST SACRAMENTO AREA FLOOD CONTROL AGENCY in connection with the general reevaluation report for the WEST SACRAMENTO, CALIFORNIA PROJECT, GENERAL REEVALUATION REPORT, and to pay damages, if necessary, in the event of the failure to perform in accordance with the terms of this Agreement and that the persons who have executed this Agreement on behalf of the WEST SACRAMENTO AREA FLOOD CONTROL AGENCY have acted within their statutory authority.

IN WITNESS WHEREOF, I have made and executed this certification this

_____ day of _____ 20__.

BY: _____

James M. Day Jr.
Attorney for the West Sacramento Area Flood
Control Agency

DATE: _____

CERTIFICATION REGARDING LOBBYING

The undersigned certifies, to the best of his or her knowledge and belief that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

BY: _____

Benjamin F. Carter

President

The Central Valley Flood Protection Board

DATE: _____

BY: _____

Kenneth A. Ruzich

General Manager

The West Sacramento Area Flood Control Agency

DATE: _____

West Sacramento Project

California

General Reevaluation Report



Final Project Management Plan



December 2008

CONCURRENCE PAGE

We, the undersigned, concur with the Project Management Plan for the West Sacramento Project General Reevaluation Report, California. We understand that this is a "**living**" management document that will be updated as needed throughout the process stated within.

U.S. Army Corps of Engineers

| <u>NAME</u> | <u>TITLE</u> | <u>SIGNATURE</u> | <u>DATE</u> |
|---------------------|--------------------------|------------------|-------------|
| Christine Altendorf | Deputy DE for PPMD | _____ | _____ |
| Frank Piccola | Ch, Planning Division | _____ | _____ |
| Kevin Knuuti | Ch, Engineering Division | _____ | _____ |
| Sharon Caine | Ch, Real Estate Division | _____ | _____ |
| Carl Korman | Ch, Office of Counsel | _____ | _____ |
| Judy Grant | Ch, Contracting Division | _____ | _____ |

Non-Federal Sponsors

| | | | |
|------------|--------------------------|-------|-------|
| Jay Punia | Executive Officer, CVFPB | _____ | _____ |
| Ken Ruzich | General Manager, WSAFCA | _____ | _____ |

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1.0 Purpose and Scope

1.1 Project Context

Surrounded by water during the winter months, the City of West Sacramento (City) depends on levees for the safety of its residents. Only five years ago, the U.S. Army Corps of Engineers (Corps) completed levee improvements authorized through the *West Sacramento Project* that were intended to provide the City with greater than 100 year flood protection. Unfortunately, these levee improvements, recommended as part of the *Sacramento Metropolitan Area, California, General Reevaluation Report* dated February 1992, did not consider the underseepage deficiencies facing many of the levees which protect the City. Although the levee improvements authorized for construction were redesigned to address underseepage, the remaining levees which protect the City were not reevaluated to determine whether they were adequate to withstand the design flood event. Further, the geotechnical engineering and risk analysis standards being applied to urban levees in the post-Katrina environment have raised additional doubt regarding the actual level of protection afforded to the City by the existing flood protection infrastructure.

As a result, the West Sacramento Flood Control Agency (WSAFCA) has initiated a thorough, State and locally-funded review of its flood risk management system. Based on the current Federal standards, multiple deficiencies have been found in the Federal levee system that protects the City, with the predominant dangers being seepage, stability and erosion. Recognizing the need for more work, the City has moved proactively to address this challenge, with City residents recently voting to assess themselves for up to \$40 million of the needed funds. The City is seeking additional assistance and funding from private, state and Federal sources to implement the repairs necessary to reduce the flood risk facing their community.

1.2 Purpose of a Project Management Plan

The primary purpose of the Project Management Plan (PMP) is to describe the management and planning methods to be applied during the study, define the scope of activities to be accomplished, and establish a schedule and budget necessary to successfully complete the study. The PMP reflects an agreement between the non-Federal sponsor and the U.S. Army Corps of Engineers (Corps) regarding the procedures, scope, schedule, and budget associated with the development of the General Reevaluation Report.

The PMP provides a baseline against which changes in the project planning process and study scope are measured. Because project planning is an iterative process without a predetermined outcome, changes in scope, budget, or schedule may be required to accomplish the reformulation and subsequent analysis of various study alternatives. As the technical picture evolves, changes in the study scope should be expected. These deviations are easier to identify and measure with a PMP that clearly defines a set of study assumptions and scope. As a result, the associated impacts in either schedule or budget are easier to assess and subsequently render a well-informed decision regarding how to proceed.

The PMP is a basis for the review and evaluation of the General Reevaluation Report. Since the PMP represents an agreement among study partners, it is used to determine if the interim, draft, and final deliverables have been developed in accordance with the assumptions, methods, and procedures recommended within this document. The objective of the recommended assumptions, methods, and procedures is to provide early assurance that the project is developed in a way that can be supported by both the Federal Government and the non-Federal sponsor.

1.3 Purpose of the General Reevaluation Report

The Corps uses General Reevaluation Reports to present the results of a reanalysis of a previously completed study, using current planning criteria and policies, as required due to changed conditions and/or assumptions. The results may reaffirm the previous plan, reformulate and modify it, or find that no plan is currently justified. The results are documented in a General Reevaluation Report (GRR) which, if recommended and supported, also serves as the decision document for a Federal action.

The primary objective of the West Sacramento General Reevaluation Report is to determine the extent of Federal interest in additionally reducing the flood risk within the study area while concurrently exploring opportunities to enhance recreation and the ecosystem along the Sacramento River within the study area.

1.4 Summary of PMP Contents

In accordance with Engineer Regulation 5-1-11 dated 1 November 2006 all projects shall be managed with a PMP. The PMP is a roadmap for quality project delivery. This roadmap for the West Sacramento Project, General reevaluation report includes the following sections:

- **Section 1 – Purpose and Scope.** This section introduces the context for the project, explains the purpose of the PMP, and identifies the overall goals and scope for the General Reevaluation Report.
- **Section 2 – Physical Setting & History.** This section introduces the watershed containing the study area as well as the location and physical description of the study area itself. This section also summarizes the recent history of flooding in the study area, introduces relevant Federal flood protection authorities, describes potentially interested project stakeholders, and lists related studies, report, and projects.
- **Section 3 – Preliminary Plan Formulation & Strategy.** This section outlines many of the topics that would have been discussed in a Section 905(b) Report. These topics include a brief description of the planning process, problems and opportunities within the study area, General Reevaluation Report objectives, and preliminary measures and alternatives.

- **Section 4 – Scope of the General Reevaluation Report.** This section identifies the specific investigations and components that comprise the General Reevaluation Report. The description of each component includes the technical requirements with which the General Reevaluation Report must comply.
- **Section 5 – Study Milestones & Schedule.** This section defines the key milestones or decision points for the General Reevaluation Report. It also includes an estimate of the schedule for accomplishing the study tasks and products.
- **Section 6 – Study Budget & Cost-Sharing.** This section provides a summary of study costs for major study tasks and a breakdown of those costs between Federal and non-Federal interests. It also provides a brief description of the cost-sharing requirements associated with a General Reevaluation Report.
- **Section 7 - General Reevaluation Report Management Guidelines.** This section defines the study management structure including the Project Delivery Team (PDT), Management Committee, and Executive Review Board. This section additionally established a baseline for communication, coordination, and change management during the study.
- **Section 8 – Quality Control Plan.** This section supplements the district’s Quality Control Plan. It identifies the review processes, independent technical review team members, and the study deliverables for review to ensure that the West Sacramento General Reevaluation Report and its associated products are of the highest quality.

2.0 Physical Setting & History

2.1 Overview of the Sacramento River Watershed

The Sacramento River watershed is comprised of 26,300 square miles in the northern half of California's Central Valley. The watershed is approximately 240 miles long and up to 150 miles wide bounded by the Sierra Nevada on the east, the Coast Range on the west, the Cascade and Trinity Mountains on the north, and the Delta on the south. Major tributaries of the Sacramento River include the Feather and American Rivers.

The Sacramento River watershed typically receives the greatest runoff as a result of winter and spring rainfall. A majority of the Sacramento River is perched, meaning the river channel is at a higher elevation than the adjacent lower lying basins. This effect is amplified as flows combine with tides near the bottom of the watershed to strongly influence flood water levels in the Delta. This often causes backwater effects on the Sacramento River and its tributaries in and near the Delta.

Between Lake Shasta and Red Bluff, the Sacramento River is relatively narrow and entrenched, with little floodplain and a narrow riparian corridor. Shasta Dam regulates most of the flood flows entering the reach. From Red Bluff to Chico Landing, the river is relatively free to erode and deposit bank material as it meanders within its floodplain. This reach does not have major levees or other flood management facilities and includes the most extensive riparian habitat of any reach of river. Downstream from Chico Landing, a system of levees, weirs, bypasses, and natural overbank areas convey flow to the Delta. The Sutter Bypass and finally the Yolo Bypass carry the bulk of flood flows to the Delta.

Riparian forests in the Sacramento River watershed are considerably smaller than they were historically, but still support a variety of wildlife. The vegetation includes Valley oak riparian, Great Valley cottonwood riparian, Great Valley mixed riparian elderberry savanna, oak woodland, freshwater marsh, seasonal wetlands, grasslands, and agricultural lands. Ecosystem functions, such as periodic inundation of habitat along the river, have also been reduced from the historical condition, resulting in a reduction of ecosystem diversity and productivity.

In the early 1900s, the Federal and State governments began construction of system-wide flood management facilities, including levee, weirs, and bypass channels. This included constructing new facilities and reconstructing existing private facilities to meet the Federal engineering standards that existed at the time. The effort focused on protecting lives and property by increasing the conveyance of flood waters through the system. The design goal of the facilities was to aid navigation and flush sediment remaining from the hydraulic mining conducted late in the 19th century. These conveyance facilities improved flood protection and navigation and allowed continued agricultural and urban development. They also constrained the river to specific alignments, significantly reducing channel meandering and further isolating the rivers from their historic floodplain.

The Corps constructed new levees or reconstructed private levees in order to complete the Sacramento River Flood Control Project [Enclosure 1]. This project, authorized by the Flood Control Act of 1917, encompasses approximately 1,100 miles of levee along the Sacramento River and its primary tributaries from Collinsville in the Sacramento and San Joaquin River Delta upstream to Ord Ferry in Glenn County. The non-Federal sponsor for this flood control system is the Central Valley Flood Protection Board (formerly the Reclamation Board), which accepted the responsibility to operate and maintain the system under authority granted in the Flood Control Act of 1944. In accordance with State law, most of these responsibilities have been delegated to local levee and reclamation districts. A more detailed description of the Sacramento River Basin can be found in [Appendix A](#).

2.2 Location & Description of the West Sacramento Study Area

The study area is located in eastern Yolo County in the north central region of California's Central Valley. The study area approximately corresponds with the city limit for the City of West Sacramento comprising 13,000 acres of mixed-use land and an estimated population of 44,000 residents. The City of West Sacramento is located directly across the Sacramento River from the City of Sacramento, the State's Capitol.

The study area is almost completely bound by floodways and levees [Enclosure 2]. The study area is bound by the Yolo Bypass to the west, the Sacramento Bypass to the north, and the Sacramento River to the east. Further, the City is bifurcated by the Port of Sacramento Deep Water Ship Channel (DWSC) and Barge Canal. The associated levee system currently protecting the study area includes nearly 50 miles of levees in Reclamation District (RD) 900, RD 537, Maintenance Area 4, and along the DWSC and Barge Canal. A description of these sub-basins and the levee reaches that comprise each includes the following:

Northern Sub-basin – The northern sub-basin, representing approximately 6,100 acres, is bounded by the Port North Levee and the DWSC to the south, the Sacramento River West – North Levee to the north and east, the Sacramento Bypass Levee to the north, and the Yolo Bypass Levee to the west. Land in this area varies in elevation from El. 34.0 feet near Raley Field to El. 16.0 to 18.0 feet adjacent to the DWSC. The north bank of the DWSC is generally about El. 19.5 feet. This area is traversed by the right bank of the Sacramento River from RM 63.0 to RM 57.5.

- ***Sacramento River West North Levee*** extends for approximately 5.5 miles along the Sacramento River right bank levee from the Sacramento Bypass south to the confluence of the Barge Canal and the Sacramento River.
- ***Sacramento River Bypass Levee*** extends for approximately 1.1 miles along the Sacramento Bypass left bank levee from the Sacramento Weir west to the Yolo Bypass Levee.

- ***Yolo Bypass Levee*** extends for approximately 3.7 miles along the Yolo Bypass levee left bank from the confluence of the Sacramento Bypass and the Yolo Bypass south to the Navigation Levee (DWSC West).
- ***Port North Levee*** extends for approximately 4.9 miles along the DWSC right bank levee from the Barge Canal west to the bend in the Navigation Levee.

Southern Sub-Basin – The Southern Sub-Basin encompasses approximately 6,900 acres and varies from El. 18.0 feet to El. 8.0 feet. The area is bounded by the Port South Levee and the DWSC to the north, the Sacramento River West-South Levee to the east, the South Cross Levee to the south, and the DWSC East Levee to the west. The south bank of the DWSC from Lake Washington to the Sacramento River is generally at El. 19.5 feet. The right bank of the Sacramento River extends from RM 57.7 to RM 51.5.

- ***Port South Levee*** extends for approximately 4 miles along the DWSC left bank levee from the Barge Canal west past the bend in the DWSC.
- ***DWSC West*** extends for approximately 21.4 miles along the DWSC right bank levee from the bend in the DWSC at the intersection of Port North Levee and Yolo Bypass Levee south to Miners Slough.
- ***DWSC East*** extends for approximately 2.8 miles along the DWSC left bank levee from the end of Port South Levee south to South Cross Levee.
- ***Sacramento River West South Levee*** extends approximately 5.9 miles along the Sacramento River right bank levee from the confluence of the Barge Canal and the Sacramento River south to the South Cross Levee.
- ***South Cross Levee*** extends along the South Cross levee for approximately 1.2 miles from Jefferson Boulevard to the Sacramento River where it intersects the southern end of Sacramento River West South Levee.

A majority of the levees within the study area are part of the Sacramento River Flood Control Project. The few exceptions are the Port North and Port South Levees, the DWSC West levee and the South Cross Levee. The Port North, Port South, and DWSC West levees were constructed as part of the Port of Sacramento. The South Cross Levee is a private levee.

2.3 Authority of the West Sacramento Project

The study authority for the West Sacramento area was provided through the Flood Control Act of 1962 (Public Law 87-874). This statute includes the following statement:

The Secretary of the Army is hereby authorized and directed to cause surveys for flood control and allied purposes, including channel and major drainage improvements, and floods aggravated by or due to wind or tidal effects, to be made under the direction of the Chief of Engineers, in drainage areas of the United States and its territorial possessions, which include the following named localities: Sacramento River Basin and streams in northern California draining into the Pacific Ocean for the purposes of developing, where feasible, multi-purpose water resource projects, particularly those which would be eligible under the provisions of Title III of Public Law 85-500.

The Corps later received specific project authority to implement the recommended project in the *Sacramento Metropolitan Area, California, Feasibility Report* through the Water Resources Development Act of 1992 (Public Law 102-580). Section 101 of this statute includes the following statement:

SACRAMENTO METRO AREA, CALIFORNIA – The project for flood control, Sacramento Metro Area, California: Report of the Chief of Engineers, dated June 29, 1992, at a total cost of \$17,000,000, with an estimated Federal cost of \$12,800,000 and an estimated non-Federal cost of \$4,200,000.

This authorization was revised and supplemented through the Energy and Water Development Appropriation Act of 1999 (Public Law 105-245). This statute includes the following statement:

Provided further, that the flood control project for West Sacramento, California, authorized by Section 101(4) of Public Law 102-580 is modified to authorize the Secretary of the Army, acting through the Chief of Engineers, to construct the project at a total cost of \$32,900,000 with an estimated first Federal cost of \$24,700,000 and an estimated first non-Federal cost of \$8,200,000.

2.4 Local Flood History

As a result of climactic and geographic conditions, regular flooding occurred naturally in the Sacramento Valley. During the winter and spring months, the capacity of the Sacramento River in the valley often exceeded its capacity and overflowed into the surrounding countryside. Indian folklore and newspaper accounts mention at least nine major flood events prior to 1890.

The first decade of the 20th century was marked by major flood events in 1904, 1907, and 1909. These flood events had a catastrophic affect on the urban centers of the time bringing transportation, business, and agriculture to a standstill and imparting an estimated \$11 million

damages. Other notable events in the 20th century include the floods of 1955, 1964, 1969, 1970, and 1982.

1986 Flood

The series of storms that struck California in February of 1986 resulted in the flood of record for many areas in northern and central California. Record flows in the American River in combination with high flows along the Sacramento River caused encroachment into the design freeboard of levees protecting the Sacramento Metropolitan Area.

The estimated peak flows associated with the 1986 flood were nearly equal or exceeded the design flows of the Sacramento River, Sacramento Bypass, and the Yolo Bypass in the vicinity of West Sacramento. These record flows in combination with high winds caused severe damage to the levees protecting both the Cities of Sacramento and West Sacramento. Damage caused by erosion and seepage would likely have resulted in the failure of levees at a number of locations if not for extensive emergency operations and repairs.

As a result of the problems experienced during the 1986 flood, the Corps initiated a system-wide evaluation of the levees comprising the Sacramento River Flood Control Project. Due to the large scale of the evaluation, the review was split into five phases. The first phase of this evaluation included West Sacramento and was documented through an Initial Appraisal Report titled, ***Sacramento Urban Area Levee Reconstruction Project, California*** dated May 1988. This phase included the review of approximately 110 miles of levee and recommended the repair of 34 miles.

The Sacramento Urban Area Levee Reconstruction Project Basis of Design dated, November 1989, recommended the repair of two reaches of levee protecting the City of West Sacramento. The first repair reach included two relatively small sites along the right bank of the Sacramento River near the Lighthouse Marina. The second, and more significant, repair reach included approximately six miles of levee along the right bank of the Sacramento River extending from near the Barge Canal entrance downstream to near the South Cross levee. Construction began in November 1990 for the installation of berms to improve stability and manage seepage along both reaches.

The 1986 flood exposed structural problems and identified the inability of the existing levees to provide critical flood protection to the urban area comprised of the Cities of Sacramento and West Sacramento. As a result, the Corps in cooperation with the State of California initiated the General Reevaluation Report titled, ***"Sacramento Metropolitan Area, California"***. This report was published in February 1992 and indicated the existing flood control system in the study area provided significantly less than a 100 year level of protection. The study went on to recommend a program of improvements which at the time were estimated to provide the City with a 400 year level of protection assuming implementation of a 200 year flood control only dam on the American River; but, the recommended plan would provide at least a 150 year level of protection if this American River project element was not implemented. The repairs

recommended by the *Sacramento Metropolitan Area, California, Feasibility Report* were authorized in the Water Resources Development Act of 1992 (Public Law 102-580); however, the 200 year flood control only dam on the American River was never authorized by Congress.

WSAFCA Formation

The West Sacramento Area Flood Control Agency (WSAFCA) is a Joint Powers Authority (JPA) created in 1994 through a Joint Exercise of Powers Agreement by the City of West Sacramento, Reclamation District (RD) 900, and RD 537. WSAFCA was established to coordinate the planning and construction of flood protection facilities within the boundaries of the JPA and to help finance the local share of flood control projects. The formation of this agency was primarily in response to authorization of the flood protection repairs recommended in the Sacramento Metropolitan Area General Reevaluation Report. WSAFCA formed an assessment district in 1995 to fund the local cost share of these repairs.

1997 Flood

The New Year's Day Flood of 1997 is one of the largest experienced in northern California since the beginning of the measured record in 1906. The flood was notable for its sustained intensity of rainfall, aerial extent, and shear volume of flood water. Over a 3 day period centered on New Year's Day, warm moist winds from the southwest poured more than 30 inches of rain onto watersheds covered with snow and already saturated from one of the wettest Decembers on record.

As a result of the high water, levees along the Sacramento and Yolo Bypasses and within RD-900 along the Sacramento River sustained heavy damage. These damages included erosion along the left bank of the Yolo Bypass; seepage and sloughing along the left bank Sacramento Bypass; and sloughing along the right bank of the Sacramento River within RD-900.

Prior to this flood event, the Corps was in the process of preparing construction plans and specifications for the levee repairs authorized in the WRDA of 1992. The design of these repairs was documented in the report titled, *West Sacramento Project, West Sacramento, California, Design Memorandum* dated May 1995. However, in the wake of the 1997 flood, the Corps identified underseepage as an area of greater concern in the design and repair of levees. This resulted in a number of design revisions to the levee repairs recommended in the West Sacramento Project Design Memorandum. These design revisions and the associated increase to the total estimated project cost were captured in a supplemental authorization through the Energy and Water Development Appropriation Act of 1999 (Public Law 105-245).

Recent Events

Central California experienced a series of storms between 28 December 2005 and 9 January 2006. These storms resulted in the most significant rainfall runoff event since the 1997 flood and caused several rivers and streams in the Central Valley to rise above flood stage. This event was the first time since the 1997 flood that the gates at the Sacramento Weir were opened

to relieve flood stages on the Sacramento River. In response to this event, the Corps issued a public notice under Public Law 84-99 for levee rehabilitation on 2 February 2006.

RD 900 submitted three requests for assistance in response to the public notice. These requests identified a total of five sites within the project boundaries. A Problem Identification Report issued by The Corps titled *“Request for Federal Assistance in Repairing Flood Damages for Public Law (P.L.) 84-99 Sites, Reclamation District 900, Yolo County, California – Order 3 Site. (Final)”* dated April 13, 2007 describes each of these damaged sites. To date, three of the five sites have been repaired.

2.5 Previous or Related Studies & Projects

The Corps has prepared several reports and completed multiple projects within the study area. The most significant planning and design reports are as follows:

- **Sacramento River Flood Control Project: Sacramento Urban Area Levee Reconstruction, Basis of Design – USACE (November 1989).** The Corps completed a basis of design (BOD) to present the results of engineering studies and investigations prior to preparing plans and specification for remedial construction of select levees in the cities of Sacramento and West Sacramento. The BOD includes discussion of previous studies, geology of the region, discussion of subsurface characteristics, design considerations, alternative comparison and cost estimates.
- **Sacramento Metropolitan Area, California, Feasibility Report and Environmental Impact Statement/Environmental Impact Report – USACE (February 1992).** The Corps developed a feasibility report to assess the need for additional flood protection, to identify potential alternatives to increase flood protection and to determine Federal interest on the alternatives. The Corps study determined that there was a need for additional flood protection and then provided several potential alternatives which would provide varying levels of flood protection. The selected alternative recommended raising the south bank of the Sacramento Bypass and the east bank of the Yolo Bypass from the Sacramento Bypass south to the Navigation Levee.
- **West Sacramento Project, West Sacramento, California: Design Memorandum and Environmental Assessment/Initial Study – USACE (May 1995).** The Corps prepared a design memorandum for the flood protection improvements recommended in the Sacramento Metropolitan Area, California, Feasibility Report and Environmental Impact Statement/Environmental Impact Report authorized by Congress in 1992. The memorandum addressed necessary revisions to this feasibility report which had assumed that a flood control only dam near Auburn would be constructed. The memorandum presented and described the process for construction and mitigation as well as associated costs.

- **Sacramento River Bank Protection Project, California – USACE (On-going).**
Authorized by the Flood Control Act of 1960, the Sacramento River Bank Protection Project (SRBPP) is a continuing construction project to provide protection for the existing levee and flood control facilities of the Sacramento River Flood Control Project (SRFCP). This project provides a continuing long-range program of bank stabilization and erosion control to maintain the integrity of the SRFCP through bank protection and setback levees. As the authority for Phase II draws to a close, the Corps is initiating a GRR to study alternative means to preserve the integrity of the SRFCP. The SRBPP has historically repaired erosion sites in the West Sacramento area and is scheduled to repair additional sites in the coming two construction seasons.
- **Sacramento and San Joaquin River Basins, California, Comprehensive Study – Interim Report – USACE (December 2002).** Following the floods that occurred in January 1997, the Corps and the State of California Reclamation Board (currently known as the Central Valley Flood Protection Board) prepared an Interim Report along with Technical Study Documentation which documented the existing flood management system and potential modifications to it for flood damage reduction and ecosystem restoration along the Sacramento and San Joaquin Rivers. This report also reflects that the public's safety and economic prosperity should not conflict with conserving natural systems. This report goes into more detail on developing a comprehensive and effective plan for flood management, how the system functions and how it can be improved. The major undertaking of the study was developing the necessary analytical tools to evaluate how changes to the system affected the performance of the system as a whole with respect to reducing flood damages, protecting public safety, and restoring degraded ecosystem. The study laid the groundwork for future potential modifications to the system for the purpose of reducing flood damages and restoring impacted ecosystems.

2.6 Public Interest & Involvement

The citizens within the City have made reducing flood risk in their community a priority. In order to generate revenue for the evaluation and improvement of their levees, WSAFCA held a Proposition 218 election. Proposition 218 authorizes a government agency to fund public improvements by levying an assessment on the properties that would receive a special benefit from the improvements. Between March and June of 2007, WSAFCA hosted a series of four public workshops to inform the public of the known flood risks facing the community and the benefit of the assessment. On 16 July 2007, WSAFCA announced that 70% of the weighted ballots returned by property owners in West Sacramento approved the annual flood protection assessment.

The City Council for West Sacramento likewise reaffirmed its General Plan policy of achieving a minimum level of 200 year protection for the City during this same timeframe by adopting Ordinance 07-11 during a City Council Meeting on 2 May 2007. In association with these actions, WSAFCA and the City have initiated programmatic investigations of the levees

protecting the City in order to characterize the existing conditions and establish the program of improvements necessary to provide protection against the 200 year flood event. One of the studies initiated was a Programmatic Environmental Impact Report (PgEIR) for the levee improvement program. A public scoping workshop was held in association with this study on 13 November 2007. No significant public opposition has been received during or in response to any of these public outreach opportunities.

2.7 Array of Project Stakeholders

Due to the City's prominent location in the center of California's Central Valley and the significant commercial and industrial base already established in the City, the study area enjoys keen interest from a broad array of project stakeholders. The study area lies wholly within the Congressional District of Congressman Thompson (CA-1); however, Congressmen Herger (CA-2) and Lungren (CA-3), Congresswoman Matsui (CA-5), and Senators Boxer and Feinstein have previously expressed interest in West Sacramento flood protection improvement projects.

The proposed study and associated flood protection improvements are expected to generate interest from an array of public and private entities, including:

- County of Yolo
- City and County of Sacramento
- Ports of Oakland and Stockton
- Sacramento Metro and West Sacramento, Chambers of Commerce
- Greater Sacramento Building Industry Association
- Association of General Contractors
- International Longshore & Warehouse Union (ILWU)
- Teamsters, Laborers International
- Sacramento Clean Air Partnership
- Sacramento Area Council of Governments (SACOG)
- Bay Area Metropolitan Transportation Commission
- Farmers Rice Cooperative
- Archer Daniels Midland (ADM)
- Agrium
- Star Shipping
- Stevedoring Services of America,
- Marine Terminals Corporation/Ports America
- Cemex Cement
- Pan Pacific Cement
- California Association of Port Authorities
- American Association of Port Authorities
- Northern California Trade Coalition

3.0 Preliminary Plan Formulation & Strategy

3.1 Purpose

The purpose of this section is to determine if there is a Federal interest in participating in a cost shared reevaluation of the West Sacramento Project, California. This reevaluation would determine the extent of Federal interest in implementing additional flood risk management improvements for the City of West Sacramento. This section of the PMP is also intended to provide an overview of the type of information that would have been found in a Section 905(b) Report as well as provide the rationale for plan formulation.

3.2 Plan Formulation Process Overview

The U.S. Army Corps of Engineers planning process is grounded in the Principles and Guidelines promulgated in 1983 as set forth in the two documents titled, Economic and Environmental *Principles* for Water and Related Land Resource Implementation Studies and the Economic and Environmental *Guidelines* for Water and Related Land Resource Implementation Studies. These guidelines establish a framework for the Corps to balance economic development and environmental needs in the course of water resource planning studies.

During this General Reevaluation Report, the six step planning process set forth in the Principles and Guidelines are applied iteratively to focus the planning effort and eventually select and recommend a plan for authorization. The six step planning process includes the following:

- Specify problems and opportunities
- Inventory and forecast conditions
- Formulate alternative plans
- Evaluate effects of alternative plans
- Compare alternative plans
- Select recommended plan

During multiple iterations of these planning steps, the emphasis placed on each step differs based on the phase of the project. In the early iterations such as the reconnaissance phase, the step of specifying problems and opportunities is emphasized; however, the five other steps are not ignored since the initial screening of preliminary plans that results from these steps is very important in the scoping of the feasibility phase.

3.3 Problems and Opportunities

The study area is threatened by an unacceptable level of flood risk for an urban region with significant existing residential, commercial, and industrial development. Further, as the floodplain habitat has been altered, natural native habitats have been lost causing impacts to endangered and threatened species. Although faced with a serious and urgent need to reduce this level of flood risk and restore native habitats, a significant number of opportunities exist within the study area to address these problems. An expanded explanation of problems and needs has been included in the following list:

- *Public Safety*: Flooding poses a public health threat to the citizens of the City of West Sacramento. The existing levees within the study area protect over 13,000 acres of mixed-use land in eastern Yolo County. This area corresponds with a current population estimated at 44,000 residents.
- *Economic Impact*: Flooding incurs substantial damages to the residential, commercial, and industrial development in the City of West Sacramento. The West Sacramento Project Design Memorandum dated May 1995 estimated the number of residential structures in the floodplain at 9,194. Today, the estimated number of residential structures is 12,656. A recent review of the economic analysis conducted for the Sacramento and San Joaquin River Basins Comprehensive Study indicates the depreciated replacement value of approximately \$3.5 billion for the structures and contents potentially damaged by a flood in West Sacramento. This value is based on 2007 price levels of an economic analysis conducted in 2000.
- *Riparian & Aquatic Habitat*: The quality and quantity of riparian and aquatic habitats have diminished having an adverse effect on the floodplain ecosystem, including special status species. This ecosystem degradation is based on a reduction in the quantity, quality, diversity, and connectivity of riparian, wetland, floodplain and shaded riverine aquatic habitats.
- *Recreation & Public Access*: Opportunities for the residents of the greater Sacramento Metropolitan area to enjoy the Sacramento River in an open and natural setting have not kept pace with the increased demand stemming from population growth.

3.4 National Planning Objectives

The Principles and Guidelines require that Federal water and related land resources projects directly contribute to National Economic Development (NED) in a manner consistent with protecting the Nation's environment. Contributions to NED are achieved by increasing the net value of the Nation's output of goods and services, expressed in monetary units. NED contributions must also consider environmental quality as pertaining to the effects of proposed

changes on ecological, cultural, and esthetic attributes of significant natural and cultural resources.

Federal projects associated with ecosystem restoration must directly contribute to the National Ecosystem Restoration (NER) outputs by restoring degraded ecosystem structure, function, and dynamic processes to a less degraded, more natural condition. Contributions to NER are increases in ecosystem value and productivity, and are measured in non-monetary units such as average annual habitat units or acres.

3.5 Local Planning Objectives

The national objectives of NED and NER are general statements and not specific enough for direct use in plan formulation. The water and related land resource problems and opportunities identified in this study are stated as specific planning objectives to provide focus for the formulation of alternatives. These planning objectives reflect the problems and opportunities and represent desired positive changes in the without project conditions.

The following planning objectives have been identified based on coordination with representatives from the non-Federal sponsors as well as a review of information recently developed by WSAFCA:

- Reduce the risk of flooding to the City of West Sacramento and the associated economic damages due to flooding within the primary study area. In accordance with current State law, the non-Federal sponsor seeks to reduce the risk from flooding to a less than 0.5% chance in any given year.
- Develop a sustainable flood management system for the future, as well as a plan to address and communicate residual flood risks.
- Enhance the aquatic and riparian ecosystem along the Sacramento River
- Provide expanded opportunities for recreation along the entire levee system

3.6 Planning Constraints

A constraint is a restriction that limits the extent of the planning process. It is a statement of things the alternative plans should avoid. Constraints are designed to avoid undesirable changes between without and with-project future conditions. The planning constraints for this study are:

- Comply with all Federal, State, and local laws, regulations and policies
- Avoid adverse hydraulic effects where they could result in economic damage to others.
- Compliance and compatibility with local land use and development plans.
- Available funding and anticipated schedule. The amount of available funding to conduct the study will affect both its schedule and scope.

3.7 Plan Formulation Methodology

The formulation, evaluation, and comparison of alternative plans comprise the third, fourth, and fifth steps of the Corps' planning process. These steps are often referred to collectively as plan formulation. Plan formulation is a highly iterative process that involves cycling through the formulation, evaluation, and comparison steps many times to develop a reasonable range of alternative plans and then narrow those plans down to a final array of feasible plans from which a single plan can be identified for implementation.

Plan formulation for flood damage reduction (FDR) and ecosystem restoration (ER) presents a challenge because alternative plans produce both monetary and non-monetary benefits. Comparison of the trade-offs among alternative plans is difficult because monetary and non-monetary benefits cannot be directly compared. To facilitate the plan formulation process, the methodology outlined in the Corps' Engineering Circular 1105-2-404, "Planning Civil Work Projects under the Environmental Operating Principles," 1 May 2003, was used. The steps in the methodology are summarized below:

- Formulate and screen management measures (referred to hereafter simply as measures) to achieve planning objectives and avoid planning constraints. Measures are the building blocks of alternative plans.
- Identify a primary project purpose. For this study, it is anticipated that flood risk reduction will be identified as the primary purpose. This is because there is a strong local interest in providing a higher level of flood protection to this urban area.
- Formulate, evaluate, and compare an array of alternative plans to achieve the primary purpose (flood risk reduction) and identify a feasible plan that reasonably maximizes National Economic Development (NED) outputs (outputs minus costs). This plan is called the National Economic Development plan.
- Formulate and screen plans that achieve both flood risk reduction while contributing to ecosystem restoration and recreation (combined plans).
- Evaluate and compare trade-offs among the combined plans and rank them. The highest ranked combined plan is the plan that reasonably maximizes total net NED and National Ecosystem Restoration (NER) outputs.
- Determine whether the highest ranked combined plan is justified; that is, whether the benefits of the plan exceed the costs. If the highest ranked plan is not justified, move to the next ranked plan. Continue to move down through the ranked plans until a justified plan is identified. The highest ranked, justified, combined plan is the NED/NER plan or the Combined Plan. If no combined plan is justified, the NED plan shall be recommended for implementation.

3.8 Planning Criteria

Planning criteria are used to formulate, screen, evaluate, and compare measures and alternative plans. Four specific screening criteria are required in Corps water resource studies: completeness, effectiveness, efficiency, and acceptability. These criteria are generally subjective and are useful in narrowing down the array of possible alternative plans. With the exception of completeness, these criteria are also useful in screening potential measures.

- **Completeness.** Completeness is a determination of whether or not the plan includes all elements necessary to achieve the objectives of the plan. It is an indication of the degree that the outputs of the plan are dependent upon the actions of others. Plans that depend upon the actions of others to achieve the desired output will be dropped from consideration.
- **Effectiveness.** Effectiveness is the extent to which a measure or alternative plan achieves the planning objectives. Measures or alternative plans that clearly make little or no contribution to the planning objectives will be dropped from consideration.
- **Efficiency.** Efficiency is a measure of the cost effectiveness of the plan expressed in net benefits. Benefits can be both monetary and non-monetary. Measures or alternative plans that provided little benefit relative to cost will be dropped from consideration.
- **Acceptability.** Acceptability is a measure of the ability to implement a measure or alternative plan. In other words, acceptability means a measure or plan is technically, environmentally, economically, and socially feasible. Unpopular plans are not necessarily infeasible, just unpopular. Measures or plans that are clearly not feasible will be dropped from consideration.

Measures and plans that pass the screening criteria are evaluated and compared against more specific evaluation criteria. These specific evaluation criteria will be defined during development of the GRR. Evaluation criteria can include costs, outputs, or effects and reflect the planning objectives or constraints. Some or all of the evaluation criteria may be used at various stages in the plan formulation process to compare alternative plans. Effective evaluation criteria must be measurable and reveal differences or trade-offs between alternative plans.

3.9 Potential Flood Risk Reduction Measures

A measure is a feature or an activity that addresses one or more of the planning objectives. A broad array of flood risk reduction measures will be considered. Each measure will be assessed during the study and, based on technical or economic considerations, either retained or deleted for the development of alternative plans. Table 1 describes potential flood risk reduction measures by overall approach.

Table 1 - Summary of Potential Flood Risk Reduction Measures

| Approach | Mitigation Measure |
|---------------------|---|
| Storage | Reservoirs (Construct New or Modify Existing) |
| | Detention Basins |
| Conveyance | Modify Bypasses |
| | Remove Vegetation |
| | Setback Levees |
| | Levee Raise (In-Place or Adjacent) |
| | Weirs (Alter Operation or Widen) |
| Levee Strengthening | Internal Drains |
| | Floodwalls |
| | Seepage Cutoff Barrier (Slurry Wall, Deep Soil Mixing, Sheet Pile) |
| | Berms (Seepage, Stability) |
| | Relief Wells |
| | Setback Levees |
| Non-Structural | Reservoir Re-Operation |
| | Flood Warning System |
| | Emergency and Evacuation Planning |
| | Ring Levees |
| | Relocate Structures |
| | Raise or Floodproof Structures |

3.10 Potential Ecosystem Restoration Measures

A measure is a feature or an activity that addresses one or more of the planning objectives. A broad array of ecosystem restoration measures will be considered. Each measure will be assessed during the study and, based on technical or economic considerations, either retained or deleted for the development of alternative plans. Table 2 describes potential ecosystem restoration measures.

Table 2 - Summary of Potential Ecosystem Restoration Measures

| Approach | Mitigation Measure |
|------------|---|
| Vegetation | Propagation of Native Species |
| | Installation of Eco-fences or Rootwads |
| | Removal of Non-Native Species |
| Structural | Channel Excavation or Reconfiguration |
| | Restoration of Hydraulic Connection with Floodplain |
| | Removal of Bank Protection |
| | Levee Realignment or Setback |

3.11 Formulation of Preliminary Plans

Measures retained through the initial screening will form the basis for the formulation of alternative plans. Preliminary plans to be evaluated during the general reevaluation study are described below. Several potential structural alternative plans are already under evaluation by WSAFCA.

- No Action. The Corps is required to consider the option of “No Action” as one of the alternatives in order to comply with the requirements of the National Environmental Policy Act (NEPA). No action assumes that no project would be implemented by the Federal Government or by local interests to achieve the planning objectives. No Action, which is synonymous with the “Without Project Condition”, forms the basis from which all other alternative plans are measured.
- Non-Structural Alternatives. The Corps is required to consider non-structural measures for all flood risk reduction projects. One or more non-structural alternative plans will be developed that incorporate non-structural measures such as floodproofing structures or removing structures from the floodplain.
- Structural Alternatives. The Corps often considers various structural measures to manage flood flows and reduce damages within the floodplain. This can be accomplished by storing water for release at non-damaging flows, or using levees and channels to confine flood flows from entering developed portions of the floodplain.
- Combination (Structural and Non-Structural) Alternatives. The identification of both structural and non-structural measures is likely to result in the formulation of alternatives that includes both types.

3.12 Policy Considerations and Potential Issues

- Section 104 – In order to reduce flood risk and improve public safety for the citizens of the City of West Sacramento, WSAFCA and the State of California are seeking to implement levee improvements in advance of the completion and authorization of this General Reevaluation Report. WSAFCA and the State will be requesting credit for these activities under Section 104 of the Water Resources Development Act (WRDA) of 1986. Section 104 credit is for non-Federal work started after the reconnaissance phase of the Corps preauthorization studies but prior to project authorization. Local work must receive approval from the Assistant Secretary of the Army for Civil Works prior to the award of a construction contract to be eligible for credit. The Corps will determine if the local improvements ultimately support the recommended plan and include consideration for Section 104 credit in the recommendation of the General Reevaluation Report. If approved for consideration to credit, the GRR will assume that the Section 104 work has not been completed, and, therefore, available to be considered as an alternative plan.
- Section 408 – In order to reduce flood risk and improve public safety for the citizens of the City of West Sacramento, WSAFCA and the State of California are seeking to implement levee improvements in advance of the completion and authorization of this General Reevaluation Report. WSAFCA and the State will be requesting approval for these activities under 33 USC 408. Section 408 addresses the process necessary for a non-Federal sponsor to secure approval to alter or modify a completed Corps project that is locally maintained. The Corps will assist in determining if the local improvements ultimately support the recommended plan and comply with Federal regulations, policy, and guidance.

3.13 Federal Interest

Based on the preliminary consideration and review of the study area, the described water resource problems and opportunities, and previous Federal involvement with flood protection projects in this region, there is a strong Federal interest in participating in a General Reevaluation Report based on the following:

- Since flood damage reduction is an output with a high budget priority and flood damage reduction is the primary output of the alternatives to be evaluated in the General Reevaluation Report. There are opportunities to reduce flood damages to urban areas adjacent to the Sacramento River and the Yolo and Sacramento Bypasses.
- Most of the basin is already highly urbanized and development adjacent to the rivers and bypasses has already occurred. Over 12,000 residential structures already exist in the floodplain.

- Significant environmental resources are present in the Sacramento River and Yolo and Sacramento Bypasses that are subject to loss and/or further degradation if not restored. A potential exists for the restoration of significant environmental resources along these waterways.
- Potential exists for providing multiple-use recreation opportunities in conjunction with adjacent and setback levees along the Sacramento River, such as walking and biking trails, and places to view wildlife.
- A non-Federal sponsor has been identified to share the cost of the investigation.

3.14 Preliminary Financial Analysis

The non-Federal sponsors, the State of California Central Valley Flood Protection Board and the West Sacramento Area Flood Control Agency, together will be required to provide 50 percent of the cost of the General Reevaluation Report. Both non-Federal sponsors are also aware of the cost-sharing requirements for potential project implementation.

The Disaster Preparedness and Flood Prevention Bond Act of 2006, commonly referred to as Proposition 1E, established a number of new authorities under which the State of California may participate and partner in studies dedicated to the planning, design, and construction of flood risk reduction projects across the State. Proposition 1E funds will likely be applied to cover the State's portion of the total study cost.

By statute, the State of California seeks participation from a local sponsor with which to share the costs of the project or study. For this study, WSAFCA would participate as the local sponsor. Under Proposition 218, a government agency may fund public improvements by levying an assessment on the properties that would receive a special benefit from the improvements. On 16 July 2007, WSAFCA announced that 70 percent of the weighted ballots returned by property owners in West Sacramento approved an annual flood protection assessment. The approval of this parcel assessment enables the agency to generate approximately \$42 million through assessment revenue or the issuance of bonds against the assessment.

4.0 Scope of the General Reevaluation Report

4.1 General Reevaluation Report Scope Overview

The primary objective of this section is to identify major features of work associated with the West Sacramento General Reevaluation Report. The intent is to describe the project delivery team's best estimate of the tasks necessary to successfully meet the goals and objectives of the study.

The work breakdown structure (WBS), in conjunction with the milestone schedule and total study cost estimate represents the study baseline. Specific information regarding each functional organization, including a responsibility matrix and detailed scopes of work, can be found in **Appendix E**.

The WBS is the estimated framework of tasks necessary to successfully complete this phase. Although the WBS was developed in conjunction with the non-Federal sponsor, specific tasks have not been assigned to either party. A scope of work will be prepared at least annually for each functional organization on the PDT, including both non-Federal sponsors, to clearly delineate the expectations and requirements associated with each product or deliverable. Scopes of work are assumed to include the following items: team meeting attendance, site visits, review of existing documentation, general coordination, seamless review, as well as the response and incorporation of review comments.

4.2 Work Breakdown Structure

The following list of topics represents the anticipated breakdown of work for the study. This breakdown has been established to communicate the scope of the study in logical segments. Each segment may be accomplished by the Federal agency, the non-Federal partner, or a combination of the two. In order to track responsibility for segment or sub-segment, items with the Federal agency as the lead are in BOLD font; and, items with the non-Federal partner as the lead are UNDERLINED.

Surveys, Mapping, and GIS

- Topographic Mapping. Assess topographic mapping needs for project; determine if full topographic and hydrographic mapping exists and/or can be obtained and developed to support hydraulic, sedimentation, geotechnical and ecosystem restoration analyses. The ideal topographic mapping would include planimetric, topographic (contours), and digital orthographic photo coverage. A minimum of a 2-foot contour interval is appropriate for feasibility studies. All topographic information will be developed in or converted to the NAVD 1988 vertical datum.
- **Cross-Sectional Surveys**. If required in lieu of full topographic mapping, coordinate layout of cross-sections along creek and adjacent land within the study area with the hydraulic PDT member and conduct survey(s).

- **GIS Platform.** Development of GIS Data and a GIS database that integrates data from all significant technical disciplines for general accessibility using standard desktop software. Database would include pertinent data associated with the project's hydrology; hydraulic, geotechnical, environmental, civil, and structural engineering; environmental resources; real estate; and economics. All the GIS data will be in compliance with the Spatial Data Standards for Infrastructure and Environment (SDSFIE) and will also comply with the Federal Geographic Data Committee (FGDC) metadata standards. All GIS data created (including all CAD work by contractor or in-house), used by the project will be in a projected space of NAD 83 CA State Plane Zone 2 Feet).
- **Study Area Base Maps.** Collect / acquire projected aerial photographs in the coordinate system (NAD 83 CA State Plane Zone 2 Feet) to display general physical topography. Product should serve as base map for the GIS platform.
- **Special Use Maps.** Revise or segment base maps to display specific features such as land use, soil types, cultural and environmental resources, HTRW sites, project alternatives and features, floodplains, political boundaries, etc.

| | | |
|--|--------------------------------|------------------|
| Responsible Element: USACE & WSAFCA | | |
| GIS & Mapping Section | | |
| Cost: | | |
| <input type="checkbox"/> | Sacramento District: | \$25,000 |
| <input type="checkbox"/> | Sponsors In-Kind Contribution: | \$225,000 |
| Current Total Estimated Cost: | | \$250,000 |

Hydrology Studies

- **Existing Conditions.** Conduct literature reviews; identify project features; analyze and summarize existing conditions for identifying interior and exterior stages. The project hydrology will be based on the results of existing studies such as the Sacramento and San Joaquin Rivers Comprehensive Study, on going hydraulic analysis for the American River Common Features and further field investigations. In support of previous work, surveys, and wind data will be collected to aid in hydrologic analysis for wind wave analysis for each levee unit. It is anticipated that on going studies will be adequate for determining exterior stages on all levee reaches surrounding West Sacramento. The updated the project hydrology includes floods for the 5-, 10-, 25-, 50-, 100-, 200-, and 500-year events for three different centerings.
- **Interior Flood Analysis.** An interior flood analysis is needed to describe existing facilities for interior floods of the previous noted n-year events. After review of the

Cities storm drainage system it is recommended that a longer storm event greater than 24 hours be studied to determine interior stages of the storm runoff. The same hydrologic models will be used to develop West Sacramento's minimum drainage facilities. Additional floods of the 150-, 300- and 400-year may be necessary to describe concurrent and coincidence of interior floods with exterior flood stages. This study will include annual flow duration curves, wind wave analysis and provide without project hydrology certification for the F3 Conference.

- **Project Alternatives.** Provide interior hydrologic models for developing interior flood drainage alternatives. Provide flows from on going investigations on other projects and their alternatives that may alter the performance of West Sacramento's alternatives.
- **Technical Documentation.** Prepare documentation to describe and summarize all data and subsequent analysis performed in support of the primary objectives and requirements of the study. The documentation will be in a report form for incorporation into the F3 Conference Report, Draft, F4 report and Final General Reevaluation Reports.

| | | |
|--|--------------------------------|------------------|
| Responsible Element: USACE & WSAFCA | | |
| Hydrology Section | | |
| Cost: | | |
| <input type="checkbox"/> | Sacramento District: | \$240,000 |
| <input type="checkbox"/> | Sponsors In-Kind Contribution: | \$100,000 |
| Current Total Estimated Cost: | | \$340,000 |

Hydraulic Studies

- **Develop Baseline Hydraulic Analysis.** Baseline Hydraulic analysis will be developed for this project to determine the existing hydraulic condition with respect to the project area. Available information will be used to the extent possible to develop the hydraulics of the project area.
- **Develop F3 Conceptual Alternatives.** In conjunction with the PDT, develop conceptual alternatives designed to address flood-damage reduction objectives. These alternatives will be presented and discussed at the F3 conference.
- **Summarize H&H Studies.** Summarize H&H studies in written F3 report including available data, site characterization, analyses and assumptions, findings and recommendations as determined in the aforementioned tasks.

- **Hydraulic Studies.** Obtain and review any existing hydraulic models (e.g., HEC-2 decks, HEC-RAS, if they exist from previous or on-going studies. Develop hydraulic base hydraulic model. Obtain as-built bridge plans of all existing and proposed new bridges. Develop bridge inventory and include in hydraulic model. Obtain and review current FEMA floodplain mapping for use as an indicator for general trends. Obtain and review any high-water data and aerial photo coverage from past events for model calibration. Develop floodplains for current, future without project, and future with project conditions. Conduct hydraulic modeling for each alternative. Develop channel and levee/floodwall heights and alignments for alternatives. Research and apply technologies used to design a “maintenance free” floodway.
- **Fluvial Processes.** Hydraulic analysis and channel capacity analysis will estimate the current level of protection provided by existing structures. These estimates will inform the plan formulation process with hydraulic constraints and the requirement not to reduce the current level of protection. The Hydrologic Engineering Center’s River Analysis System (HEC-RAS) and the SAMwin Hydraulic Design Package for Channels will probably be used, in addition to other numerical modeling as needed. Ongoing consultation with the Civil Design section will determine the need for additional mapping and survey needs.
- **Erosion Analysis.** Supplement erosion assessment conducted by the non-Federal sponsor by considering water surface elevations associated with additional flood frequencies as necessary to characterize the existing condition. Develop conceptual designs in support of the formulation of structural alternatives focusing on improvements to the existing levee alignment.
- **Risk Analysis.** Coordinate with the lead planner, economist and the geotechnical engineer regarding the evaluation of each potential alternative in accordance with the latest risk analysis guidance. Risk Analysis (primarily through developing period of record and stage uncertainty parameters) will be performed by coordinating with the plan formulator, economist, civil engineer and geotechnical engineer regarding the evaluation of each potential alternative in accordance with the latest risk analysis guidance.
- **Technical Documentation.** Prepare the Engineering Appendix and related documentation to describe and summarize all data and subsequent analysis performed in support of the primary objectives and requirements of the study. The documentation will be in a report form for incorporation into the F3 Conference Report, F4 and F4A Conference Reports, Draft, and Final General Reevaluation Reports according to current guidance.

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|--|--------------------------------|------------------|
| Responsible Element: USACE & WSAFCA | | |
| Hydraulic Design Section | | |
| Cost: | | |
| <input type="checkbox"/> | Sacramento District: | \$515,000 |
| <input type="checkbox"/> | Sponsors In-Kind Contribution: | \$35,000 |
| Current Total Estimated Cost: | | \$550,000 |

Geotechnical Studies

- **Review Existing Data.** Review and compile existing geotechnical data provided by the Corps, DWR, West Sacramento and any other AE accompanies. Review existing geomorphology studies.
- **Analyze Existing Conditions.** Conduct literature reviews; identify project features. Evaluate existing geotechnical condition regarding underseepage, through seepage, stability, and erosion of the existing levee; determine critical reaches for each levee unit. Perform geotechnical seepage, stability, and risk analysis of the existing conditions for each levee unit. Assess the impact of the existing utility penetrations, encroachments, and vegetation on the levee performance and integrity. Coordinate with other disciplines the R&U analyses. Perform seismic analyses for the existing conditions including liquefaction analyses of the foundation soils and simplistic deformation analyses.
- **Additional Explorations.** Provide additional exploratory plan for the proposed alternatives. Coordinate the proposed exploratory plan with the Corps cultural resources and environmental specialists and with the Sponsor; coordinate ROE with the Sponsor. Complete up to 20 additional borings with an average depth of 65-feet; review subsurface investigation results; coordinate results with the Corps and the Sponsor.
- **Analyze Formulation Plan Proposed Alternatives.** Provide conceptual geotechnical requirements for each design alternative. Perform geotechnical analyses including stability, seepage, and risk analyses for the proposed alternatives in the formulation plan; provide geotechnical information for the new structures proposed by the formulation plan.
- **Alternatives Analysis.** Perform geotechnical analyses including seepage, stability, erosion and R&U, for at least 5 alternatives analyzed in the formulation plan, provide detailed analyses of the proposed plan, provide geotechnical information for the new structures proposed by the formulation plan.
- **Technical Documentation.** Prepare documentation to describe and summarize all data and subsequent analysis performed in support of the primary objectives and

requirements of the study. The documentation will be in a report form for incorporation into the F3 Conference Report, F4 Report, Draft and Final General Reevaluation Reports.

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| Responsible Element: USACE & WSAFCA | | |
| Soil Design Section & Geology Section | | |
| Cost: | | |
| <input type="checkbox"/> | Sacramento District: | \$430,000 |
| <input type="checkbox"/> | Sponsors In-Kind Contribution: | \$180,000 |
| Current Total Estimated Cost: | | \$610,000 |

Civil Engineering and Design Report

- **Engineering Lead Designer:** The Engineering Lead Designer will coordinate and help plan Engineering Division activities, ensure that work is performed and is appropriate for the General Reevaluation Report, provide answers to questions regarding engineering aspects of the study, prepare responses to comments received during review of the draft General Reevaluation Report, and provide input to the PMP. This overall management task will be ongoing throughout the study and will be in accordance with ER 1110-2-1150.
- **Coordination:** Coordinate with other technical elements of Engineering Division in order to determine the location and configuration of the various structural features.
- **Survey and Mapping Coordination:** Civil Design Section B will work with other technical elements in Engineering Division to determine additional topographic mapping and aerial photography requirements for the study. It is assumed that current LIDAR data files from DWR are available for the West Sacramento area and that top of levee data is available through the National Levee Database survey. Additional ground survey may be required for areas not covered and where additional detailed information is needed for determining relocations. All existing mapping data will need to be available in NAVD88 vertical datum.
- **Preliminary Designs:** Comparative studies, field investigations, design, and screening-level cost estimates will be in sufficient detail to substantiate the recommended plan and the cost estimate. The level of design will be consistent with the engineering plan in the PMP. The Engineering Appendix will discuss the selection of the project area and evaluation of alternative layouts, alignments, components, esthetics, and relocation of facilities, and will describe the components and features, including the improvements required on lands to enable the proper disposal of dredged or excavated material. This work will entail preparing civil drawings or plates using

data collected by other disciplines and developing digital terrain models for site layout of new levee templates and cross sections, provide site layouts for ecosystem restoration, compute quantities, and identification of haul routes. Discuss OMRR&R requirements and assist in development of a construction schedule. Mapping of the work area and borrow sources used by Civil Design will be supplied by the GIS unit.

- **Real Estate Support & Coordination** – Civil Design will also develop and describe the engineering requirements relating to the determination of lands, easements, rights-of-way, and borrow and disposal sites that are necessary for the construction, operation, and maintenance of the alternatives. Prepare preliminary design drawings depicting engineering requirements for use by Engineering and Real Estate in jointly determining land requirements. Civil Design will assist in scheduling and diversion/dewatering schemes including over-winter protection planning. Most civil design work typically follows the work of other disciplines. Work expected to be completed prior to civil design beginning are surveying, creating appropriate 3-dimensional electronic topography, and hydrologic and hydraulic investigations.
- **Utility & Encroachment Inventory:** Develop an inventory of all utility penetrations and encroachments associated with the levees included for consideration within the study area. The inventory should include all known utilities and encroachments; their surveyed location; permit status; a physical description of the feature and its function; a qualitative evaluation of condition and flood risk; and, any available information regarding the owner or parcel within which the encroachment is located. The inventory shall summarize the data in both a tabular format and as a GIS layer for display on a study map.
- **Relocations:** Civil Design will describe the alternatives and utility relocations required as a result of the alternatives. In addition, Civil Design will discuss the methods proposed for accomplishing the relocations and the related land requirements. Relocation work will consist of data searches of records, private and public utility records, and site visits.
- **Interior Drainage Study Support:** Civil Design will provide support to Water Management Section and Hydraulics Section in the interior drainage study.
- **Landscape Architecture Unit:** The Landscape Architecture Unit in Civil Design Section B will work in coordination with Planning Division, Environmental Resources Branch to develop feasibility level designs for mitigation areas and environmental restoration areas including site layout and plant type and density and provide a description of these areas and features in the Engineering Appendix. The Landscape Architecture Unit will also provide feasibility cost estimates for the restoration or mitigation features.

- **Structural Design Section:** Structural Design Section may need to provide limited input with regard to condition and replacement of existing closure structures as well as the addition of potential future additional closure structures. This limited input may also include concrete headwalls, drain structures, floodwalls, weirs, and other appurtenant structures. A detailed scope of work would need to be prepared for any structural design effort required beyond occasional meeting attendance, a site investigation, and conceptual qualitative structural evaluations.
- **Construction Schedule:** Civil Design Section will work in coordination with Construction Division and Planning Division, Environmental Resources Branch to develop a preliminary schedule for design and construction of the recommended plan or modification of existing levee system. The schedule will include the sequence of land acquisition, design, and construction operations, and will incorporate construction window constraints based on the Endangered Species Act, California Endangered Species Act, and other requirements. The type of equipment used during construction, timing and duration of equipment use, duration of overall construction period, and the affected construction area will be estimated for use in evaluating environmental effects.
- **Draft Basis of Design/Engineering Appendix:** Final deliverable products will be detailed in individual Scopes of Work. The engineering appendix will follow the outline and requirements shown in Appendix C of ER 1110-2-1150.
- **Final Basis of Design/Engineering Appendix:** The Corps with assistance from the sponsors will develop the draft basis of design and Engineering Appendix based on public, agency, CESP, and HQUSACE comments. The final basis of design and Engineering Appendix will be included as part of the final General Reevaluation Report.

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| Responsible Element: USACE & WSAFCA | |
| Civil Design Section & Structural Design Section | |
| Cost: | |
| <input type="checkbox"/> Sacramento District: | \$360,000 |
| <input type="checkbox"/> Sponsors In-Kind Contribution: | \$90,000 |
| Current Total Estimated Cost: | \$450,000 |

Economic Studies

- **Structures Inventory.** Compile existing property and structure inventories in the West Sacramento Metropolitan area. Determine those structures outside of convention (e.g., sports arenas and/or large public buildings) and develop specific depth-damage

functions to use in calculating flood damages. Use the Marshall & Swift Real Estate Valuation Service to adjust assessors property values to accurately reflect “depreciated replacement value”.

- **Assess Economic Damages/Benefits.** Determine existing economic conditions and potential future with- and without- project conditions, including identification and comparison of benefits and costs of alternative plans. The damage assessment should include the value of all pertinent structures, property, agricultural crops, automobiles, roads, and associated traffic disruption and emergency response costs. Describe economic differences between the authorized and proposed projects. The assessment will show emergency damages and associated costs, including evaluation of public utilities, evacuation efforts, temporary housing, levee repair efforts, and impacts on federal, state, and local government services.
- **Regional Economic Development and Other Social Effects Accounts.** Evaluate the Regional Economic Development (RED) impacts and Other Social Effects (OSE) associated with both the with and without project implementation. Emphasis on the RED will focus on the adverse effects associated with a flood event. The OSE will provide population at risk and loss of life estimates as well as provide levee break scenarios to show impacts on selected demographic classes of residents.
- **Risk Analysis.** Coordinate with the lead planner, geotechnical, and hydraulic engineers regarding the evaluation of each potential alternative in accordance with the latest risk analysis guidance.
- **Technical Documentation.** Prepare documentation to describe and summarize all data and subsequent analysis performed in support of the 11 primary objectives and requirements of the study. The appropriate documentation will be in a report form for incorporation into the F3 Conference Report, Draft, and Final General Reevaluation Reports. For the F4 Conference Report, prepare report information to Congress on the range of potential project benefits and the probability of achieving those benefits, as called for in the Corps’ guidance, in future benefits-cost analyses, and analyze the cost and benefits of alternatives to the current levee improvement plan and identify the flood protection plan that provides the greatest net benefits. The RED and OSE Reports will be prepared for submittal as part of the F4A Report.

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| Responsible Element: USACE | | |
| Economics & Risk Analysis Section | | |
| Cost: | | |
| <input type="checkbox"/> | Sacramento District: | \$365,000 |
| <input type="checkbox"/> | Sponsors In-Kind Contribution: | \$0 |
| Current Total Estimated Cost: | | \$365,000 |

Real Estate Analysis

- **Real Estate Coordination:** Includes, but is not limited to, CESPCK-RE participation in team meetings, negotiation of work requirements, coordination with other offices on study data needed for Real Estate's major study products, and monitoring of progress and findings associated with Real Estate study products.
- **Gross Appraisal:** This work will include preparation of a detailed estimate of all real estate costs associated with acquisition of the real property requirements (see ER 405-1-12, Chapter 12, Section III, Appraisals, paragraph 12-12b, and Real Estate Policy Guidance Letter Number 3, Guidance for Preparation of Gross Appraisals.).
- **Baseline Real Estate Cost Estimate:** This work includes accounting for the plan's total estimated real estate cost in Code of Accounts format as required by EC 1110-2-528 under Feature Codes 01, Lands and Damages. This estimate of total real estate cost should include estimated costs for all Federal and local sponsor activities necessary for completion of the plan.
- **Preliminary Real Estate Acquisition Maps Preparation:** Determine tract ownership and acreage. Prepare real estate preliminary take line drawings. This task may include coordination with the non-Federal sponsor regarding the identification and availability of potential undeveloped and commercial borrow sources and disposal sites for the project.
- **Physical Takings Analysis:** Analytical task to evaluate if the plan development hydraulically affects property by taking or diminishing property or rights for the public's use by modifying the frequency, depth, or duration of water upon the property.
- **Preliminary Attorney's Opinion of Compensability:** Investigation and attorney's determination, if owners of facility's or utility's affected by the plan have a vested interest and compensable interest in the property, with regard to the real estate taking. If so, the obligation or liability of the Federal Government is the cost of providing substitute facilities or utilities, if necessary, for existing publicly owned roads and utilities, as well as existing privately owned railroads and utilities.

- **Rights of Entry:** The CESPK will coordinate requests and work with the sponsor to obtain rights-of-entry for the survey, HTRW, cultural resources, and geotechnical exploration work required. Rights-of-entry must be obtained before testing can be done on privately owned property.
- **Institutional Financial Capability Analysis:** This work includes review the sponsor's financial arrangements required to implement the recommended plan and determine their financial capability.
- **Preparation of Real Estate Plan:** This work includes preparation of the Real Estate Plan describing the minimum real estate requirements (see ER 405-1-12, Chapter 12). All real estate data and analysis in support of the primary objectives and requirements of the study will be included.

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| Responsible Element: USACE & WSAFCA | | |
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| Cost: | | |
| <input type="checkbox"/> | Sacramento District: | \$70,000 |
| <input type="checkbox"/> | Sponsors In-Kind Contribution: | \$30,000 |
| Current Total Estimated Cost: | | \$100,000 |

Environmental Studies / Documentation

In 1992 an Environmental Impact Statement/Environmental Impact Report (EIS/EIR) was completed for the *Sacramento Metropolitan Area*. In 1996 an Environmental Assessment/Initial Study (EA/IS) was completed for design changes as a part of the *West Sacramento Project*.

An EIS/EIR will be prepared for the West Sacramento General reevaluation report. The format will be a joint document, to satisfy the obligations under the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA). Comments received on the draft document will be assessed, and revisions will be made in accordance with Federal and State law. The document will include mitigation measures for fish and wildlife and other affected resources. Mitigation and monitoring plans will be developed when needed.

Requirements of the Federal Endangered Species Act (ESA) and the California Endangered Species Act (CSEA) will be completed. The joint document will include completion of a Biological Assessment (BA) for use by the Corps in consultation with the U.S. Fish and Wildlife Service (USFWS) and the National Oceanic and Atmospheric Administration Fisheries Service (NOAA Fisheries) for Federally listed species which may be affected by any proposed work. The lead CEQA agency will carry out consultation with the California

Department of Fish and Game on State-listed species that may be affected by any proposed work.

The Corps will prepare a Scope of Work (SOW) for the USFWS to prepare a Coordination Act Report (CAR) under the Fish and Wildlife Coordination Act (FWCA). The Corps, the non-Federal sponsor, USFWS and DFG will jointly conduct a Habitat Evaluation Procedure (HEP) analysis where applicable. The HEP analysis will quantify habitat losses due to the selected plan and establish habitat values of alternative mitigation areas. An incremental analysis of the cost versus benefits of the mitigation measures will also be performed. For listed fish species, the Corps will work with NOAA Fisheries service using the Standard Assessment Modeling (SAM) for determining the affects from levee improvements.

In January 2009, the City of West Sacramento in cooperation with the Corps, will initiate a Program EIS/EIR for anticipated levee improvements in West Sacramento under 33 USC 408. The WSAFCA is the lead CEQA agency whereas the Corps is the lead NEPA agency. The Program EIS/EIR will consider the existing conditions of nearly the same geographic area of the GRR EIS/EIR. It will analyze site-specific impacts from repairs and/or improvements at least three locations for possible construction in 2010 (CHP Academy Site, The Rivers Site, Sacramento Bank Extension Site). Furthermore, the document may serve as vehicle for additional 33 USC 408 actions in the West Sacramento area after 2010.

As the Program EIS/EIR and GRR EIS/EIR are under different authorities and schedules, there may be environmental efforts (i.e. consultation with USFWS) which may occur concurrently for both efforts or separately. For funding purposes in this PMP, the Corps anticipates and outlined funding in this section in anticipation of there being separate tracks of effort. As an example, it is anticipated that a Coordination Act Report would be prepared for the Program EIS/EIR, and a second prepared for the GRR EIS/EIR. The Corps also anticipates that consultation with the resource agencies (USFWS and NOAA) is likely to occur separately. As the Program and GRR will cover approximately the same geographic area, funds associated with the GRR may be used to support actions contained in the Program effort.

The following is a description of the required tasks and a schedule of delivery of those tasks. Allocated budget amounts are also shown.

Environmental / Ecological Resources

- The West Sacramento General reevaluation report will require the preparation of a joint NEPA/CEQA document. The preparation of the EIS/EIR will be completed either in-house, by independent contract or by the non-Federal sponsor and will comply with all NEPA and CEQA requirements. If the work is accomplished by contract, the Corps or non-Federal sponsor will be responsible for preparing the scope of work, negotiating the contract, and overseeing the contractor's work to ensure they maintain the agreed upon schedule and quality performance.

- A BA will be prepared in-house, by independent contract or by the non-Federal sponsor. This is necessary for formal and/or informal consultation to be initiated with the Resource Agencies (USFWS, NOAA Fisheries). Once the BA is available, USFWS and NOAA Fisheries will be tasked to prepare Biological Opinion(s) for listed species which may be affected by the project.
- The Corps will comply with FWCA and provide funding to USFWS to prepare a draft and final CAR. The report will describe the anticipated effects of the project and will include USFWS recommendations. USFWS will provide reasonable and prudent alternatives, if any, that would avoid a jeopardy opinion. A non-jeopardy opinion may also be accompanied by reasonable and prudent measures to minimize incidental take (loss or disturbance of individuals) caused by the proposed action. The non-Federal sponsor(s) will perform all work necessary to satisfy CEQA and CSEA without duplicating the Corps efforts.
- The Corps will coordinate with other agencies, where appropriate, as required by NEPA and CEQA.
- The Corps will comply with the Clean Water Act by preparing a 404(b)(1) analysis for discharge or depositing of fill in aquatic environment.

Environmental Assessment W/O Project Conditions

- Develop a scope of work with USFWS for CAR;
- Identify/inventory aquatic habitat and species;
- Identify/inventory wildlife habitat and species;
- Air and water quality;
- Wetland Delineation;
- Other resources/criteria;
- Documentation;
- Coordinate with GIS.

Prepare EIS Notice of Intent (NOI) & Scoping Meeting for F2

The City of West Sacramento, in cooperation with the Corps, is undertaking a Program EIS/EIR for approximately the same geographic area as the GRR. In order to fully comply with the public involvement needs for the Program EIS/EIR, it is anticipated that public scoping meetings for the Program EIS/EIR would be held in mid January 2009. Separate public scoping meetings for the GRR EIS/EIR would be held in late winter/early spring 2009. The Program and GRR will cover approximately the same geographic area; and, as a result, funds associated with the GRR may be used to support actions contained in the Program effort. It is anticipated that there would be four public meetings for each action (Program, GRR): two held during the daytime, and two during the evening. Meeting locations would be in different

geographic parts of West Sacramento. Between the two actions there would be a total of eight scoping meetings.

Complete EIS/EIR

Alternatives Analysis

Develop Environmental Mitigation for Recommended Plan

- Estimated average annual habitat units (AAHUs) for mitigation plan;
- Complete cost effectiveness/incremental cost analyses (CE/ICA) for mitigation plans.

Federal Resource Agencies Coordination/Consultation

This task includes studies carried out by USFWS under the Fish and Wildlife Coordination Act (FWCA). The principal product is the CAR. This document will describe USFWS findings in the potentially affected area and used by Corps personnel in formulating preliminary alternatives. In general, the CAR should alert the Corps to any sensitive ecological areas within the project area that would complicate or constrain alternatives formulation. The Corps will coordinate with USFWS and administer the interagency scope as a part of the EIS/EIR task.

Biological surveys and impact analyses will be performed for areas where there is potential for Federal listed species. Seasonal surveys will be performed at specific locations within the project area to identify the potential affects of the project. A Biological Assessment will be prepared for use in consultation with the National Oceanic Atmospheric Administration Fisheries (NOAA Fisheries) and/or the USFWS. NOAA Fisheries and/or USFWS will issue a Biological Opinion on the project.

- Complete Coordination Act Report (USFWS)
- Complete Draft HEP (USFWS) - Assist in conducting impact assessments and developing ecological mitigation measures

| Responsible Element: USACE & WSAFCA | | |
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| Environmental Analysis Section | | |
| Cost: | | |
| <input type="checkbox"/> | Sacramento District: | \$450,000 |
| <input type="checkbox"/> | Sponsors In-Kind Contribution: | \$300,000 |
| Current Total Estimated Cost: | | \$750,000 |

HTRW Studies

- **HTRW Study and Report.** Investigate and conduct general research of study areas and adjacent properties with potential for HTRW-related issues. Document and summarize all data and subsequent analysis in a report for incorporation into the draft and final GRR.
- **Environmental Sampling and Analysis.** Sample sediment in the existing floodway, and sample soil in areas proposed for floodway expansion. Potentially sample groundwater if deemed appropriate in areas proposed for major grading or where contaminant migration is suspected. Perform laboratory analysis on all samples for a wide suite of potential contaminants.

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| Responsible Element: USACE & WSAFCA | | |
| Environmental Chemistry Section | | |
| Cost: | | |
| <input type="checkbox"/> | Sacramento District: | \$10,000 |
| <input type="checkbox"/> | Sponsors In-Kind Contribution: | \$40,000 |
| Current Total Estimated Cost: | | \$50,000 |

Cultural Resource Studies

- **Cultural Resources Identification, Documentation, and Evaluation.** Preliminary studies will include: an updated records and literature search from the Northwest Information Center of the California Historical Resources Information System (CHRIS), which includes a check of the National Register of Historic Places; consultation with Native Americans regarding any known sites, Traditional Cultural Properties or areas of special cultural concern; and a review of previous cultural resources studies prepared for the Corps for the Sacramento Urban Area Levee Reconstruction Project, Sacramento Metropolitan Area Feasibility Investigation, Sacramento River Bank Protection Project and the results of consultant studies prepared for the West Sacramento Early Implementation Program. Portions of the study area will be surveyed for cultural resources including historic and archeological, as determined appropriate based on the records check and analysis of previous investigations. This will include a survey of existing conditions, alternatives, plan recommendation, evaluation of site significance, determination of project effects, and development of mitigation measures potentially in accordance with stipulations defined through the Programmatic Agreement established for compliance with Section 106 of the National Historic Preservation Act of 1966 developed under the authority of the

Sacramento River Bank Protection Project. The need for additional subsurface explorations has not yet been identified for this phase and has not been included in the estimate.

- **Cultural Resources Compliance.** Consultation with State Historic Preservation Officer and preparation of cultural resource components of the environmental impact statement (EIS) and environmental impact report (EIR), will be necessary.

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| Responsible Element: USACE | |
| Cultural, Recreational, and Social Assessment Section | |
| Cost: | |
| <input type="checkbox"/> Sacramento District: | \$95,000 |
| <input type="checkbox"/> Sponsors In-Kind Contribution: | \$0 |
| Current Total Estimated Cost: | \$95,000 |

Cost Engineering

- **Preliminary Cost Analysis.** Develop preliminary cost estimates for the purposes of evaluating and comparing potential project alternative for selection of a recommended plan.
- **Total Project Cost Estimate.** Preparation of a total project cost estimate associated with the design and construction of the selected project alternative including: engineering and design, construction, construction management, mitigation, and all non-Federal costs. The total project cost estimate for the recommended plan will also include: first and annual cost estimates for Operations, Maintenance, Repair, Replacement, and Rehabilitation (OMRR&R), interest during construction, inspection, and replacement.
- **Cost Risk Analysis.** A cost risk analysis will be performed once the recommended plan is identified. This cost risk analysis will be done in accordance with Engineering and Construction Bulletin No. 2007-17, issued 10 September 2007, Subject: Application of Cost Risk Analysis Methods to Develop Contingencies for Civil Works Total Project Costs. The results of the cost risk analysis will be included in the General Reevaluation Report and discussed at the Alternative Formulation Briefing. The cost risk analysis will be reviewed by the Walla Walla District Directorate of Expertise for Civil Works Cost Engineering.
- **Value Engineering Study.** Conduct a Value Engineering Study prior to the F4 Conference in accordance with Corps policy. Publish the results of this study for consideration by the non-Federal sponsor and the PDT.

- **Aid in Preparing Report to Congress.** Help in preparation of a report to be submitted to Congress that includes a cost estimate for all of the planned work, and wait until Congress authorizes funding that is based on the report before beginning construction of any levee improvements.

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| Responsible Element: USACE | | |
| Cost Engineering Section | | |
| Cost: | | |
| <input type="checkbox"/> | Sacramento District: | \$100,000 |
| <input type="checkbox"/> | Sponsors In-Kind Contribution: | \$0 |
| Current Total Estimated Cost: | | \$100,000 |

Public Involvement & Outreach

- Public Involvement for Plan Formulation. The Lead Planner and Lead Environmental Resource Specialist will serve as primary contacts responsible for technical and logistical preparation of the F2 Milestone (public scoping meeting) and the F6 Milestone (public meeting on draft report). Responsibilities include capturing public feedback and comments from each event. Incorporate pertinent public comments into the appropriate project documentation. Coordinate with Corps Public Affairs Office and the non-Federal sponsors for development and implementation of a Public Involvement Plan, as necessary.
- Develop Communications Plan. Prepare a project specific Communication Plan from the template included in this PMP. This communications plan should address communication between the partners as well as with other agencies, stakeholders, the public, and the media. It should also include the development of basic but consistent set of facts, figures, and talking points for all team members to use when discussing the study.

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| Responsible Element: WSAFCA | | |
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| Cost: | | |
| <input type="checkbox"/> | Sacramento District: | \$0 |
| <input type="checkbox"/> | Sponsors In-Kind Contribution: | \$80,000 |
| Current Total Estimated Cost: | | \$80,000 |

Planning & Report Development

- **General Study Coordination (F1 – F9).** Develop, coordinate, and execute planning program for the GRR study and related requirements including the project schedule, budget, and documentation in coordination with the PDT. Provide guidance and technical leadership on planning requirements. Attend and participate in meetings with the PDT, non-Federal sponsors, concerned agencies, stakeholders, public, officials, Corps echelons, etc. Coordinate, communicate, and meet with the PDT and non-Federal sponsors to discuss plan formulation, scoping, and environmental compliance issues. Ensure compliance with pertinent planning regulations, policies, guidance, and quality management plans and practices. Assist or lead the PDT in the execution of risk analysis, document preparation, incremental analysis, milestone conferences, stakeholder involvement, and document coordination.
- Identify Problems and Opportunities. Reference historical documents and conduct a site visit to determine current study area characteristics. Evaluate and describe existing and future without-project condition. Evaluate existing and future conditions and resources for related problems. Identify opportunities to solve the problems. Investigate current community based master plans to identify and incorporate recreational opportunities into the study. Identify constraints, planning objectives, and evaluation criteria. Incorporate into F3 Conference document.
- Plan Formulation and Evaluation (pre-F3). Develop planning objectives and constraints, identify and screen potential measures that will be refined into alternative plans, including required nonstructural and no-action plans. Develop, evaluate, compare and screen preliminary alternative plans. Incorporate into F3 Conference document.
- **Evaluate and Compare Alternatives to Fully Develop Rationale for Recommended Plan.** Develop, evaluate, compare and screen alternatives. Evaluate alternatives for completeness, effectiveness, efficiency, and acceptability. Provide data and coordinate with the biologist, economist, engineers, and real estate specialists as necessary to define the scope of each alternative plan. Evaluate potential impacts, while evaluating natural and cultural resources, land use, and socioeconomic data. Based on the evaluation and comparison of each of the alternatives, as well as input from the non-Federal sponsors and public comments, select a recommended plan for implementation.
- **Report Preparation.** Plan Formulation and the lead planner will, or will compile, compose, publish, and reproduce all planning documents including: in-progress reports, F3 Conference Document (Feasibility Scoping Meeting), F4 Conference Document (Alternative Review Conference), F4A Conference Document (Alternative Formulation Briefing), Draft GRR (F5), F7 Conference Document (Feasibility Review Conference), Final GRR (F8), subsequent review documentation requests and

factsheets and 902 packages. Revise documents based on technical and policy review comments. Prepare for and conduct F3, F4, F4A, F6, and F7 milestone conferences. Prepare and coordinate Project Study Issue Checklists and Project Guidance Memorandum Compliance Memoranda as part of the required documentation for the F3, F4, F4A, F5, and F8 Milestones. Facilitate and expedite the processing of documents with CESP and HQUSACE.

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| Responsible Element: USACE & WSAFCA | | |
| Flood & Storm Risk Reduction Section | | |
| Cost: | | |
| <input type="checkbox"/> | Sacramento District: | \$280,000 |
| <input type="checkbox"/> | Sponsors In-Kind Contribution: | \$120,000 |
| Current Total Estimated Cost: | | \$400,000 |

Section 104/408 Review & Coordination

- **Section 104.** WSAFCA and the State are expected to request credit for levee improvements implemented in advance of Federal authorization under Section 104 of the Water Resources Development Act (WRDA) of 1986. The PDT will determine if the local improvements support the recommended plan and include consideration for Section 104 credit in its recommendation. If approved for consideration to credit, the GRR will assume that the Section 104 is not part of the future without project condition, and, therefore, available to be considered as an alternative plan.
- **Section 408** – WSAFCA and the State are expected to request approval to alter Federal project levees within the study area under 33 USC 408. The PDT will assist in determining if the local improvements support the recommended plan and comply with Federal regulations, policy, and guidance.
- **Assumptions** – This line item assumes that the non-Federal sponsor will request SPK to consider two (2) Section 104/408 packages that encompasses three (3) sites. One package will address construction scheduled for 2010; and, one package will address construction scheduled for 2011.

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| Responsible Element: USACE | | |
| Flood Protection & Navigation Section | | |
| Cost: | | |
| <input type="checkbox"/> | Sacramento District: | \$300,000 |
| <input type="checkbox"/> | Sponsors In-Kind Contribution: | \$0 |
| Current Total Estimated Cost: | | \$300,000 |

HQUSACE Report Review & Coordination

- **Document Reproduction & Submission.** Reproduction of the report and assembly of required documentation necessary for submission to SPD.
- **Review Coordination.** Coordination between SPK, SPD, HQUSACE, and the non-Federal sponsor for the review, approval, and processing of the study.
- **Review Documentation & Certification.** Formal documents representing responses provided by the PDT to comments developed during review.
- **Civil Works Review Board.** Upon finalization of the GRR report, SEIS, and accompanying documents, the CWRB will review and approve the document. The PDT will brief the District Engineer on the post authorization changes & justification, and other aspects of the project in preparation for the CWRB.

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| Responsible Element: USACE | | |
| Civil Works Branch | | |
| Cost: | | |
| <input type="checkbox"/> | Sacramento District: | \$50,000 |
| <input type="checkbox"/> | Sponsors In-Kind Contribution: | \$0 |
| Current Total Estimated Cost: | | \$50,000 |

Project Management

- **Project Management.** Project Manager is responsible for the cost and schedule of the project and each deliverable. In conjunction with the PDT, the project manager will support the development of the study scope and appropriate quality standards. The project manager will resource, support, and monitor study progress and develop Schedule and Cost Change Requests (SACCR), updates to the PMP, or amendments to the FCSA.

- **Annual and Interim Budget Documentation.** A budget analyst is responsible for the preparation and submission of annual Federal budget documentation, continuing coordination with the non-Federal sponsors regarding cost-sharing accounting, distribution of project funding to the PDT, and coordination of the final audit as required to closeout the cost-sharing agreement.
- **Coordination and Communication.** The project manager is responsible for the general coordination and communication associated with the project in close coordination with the PDT. Coordination may include scheduling and leading PDT meetings, ensuring the integration of non-Federal in-kind services, and interfacing with local stakeholders for input and feedback. General communication may include status reporting to senior management; distribution of pertinent historical project documentation; and the dissemination of meeting agendas, minutes, and other relevant project data.
- **PED PMP Development & Negotiation.** Develop the Project Management Plan associated with the pre-construction engineering and design phase of the project. Coordinate submission and review of the PMP with the non-Federal sponsors for execution.
- **PED Agreement Development & Negotiation.** Revise model cost-sharing agreement for pre-construction engineering and design (PED) phase of the project. Coordinate submission and review of the model cost-sharing agreement with the non-Federal sponsors for execution.

| | | |
|--|--------------------------------|------------------|
| Responsible Element: USACE, DWR, and WSAFCA | | |
| Civil Works Branch | | |
| Cost: | | |
| <input type="checkbox"/> | Sacramento District: | \$350,000 |
| <input type="checkbox"/> | Sponsors In-Kind Contribution: | \$350,000 |
| Current Total Estimated Cost: | | \$700,000 |

5.0 Study Milestones & Schedule

5.1 Description of Study Milestones

A system of milestones has been established to help monitor and manage study completion. Each major study milestone is described in the following list:

- **Initiate General reevaluation report (F1).** The General Reevaluation Report will be initiated by the signing of the FCSA. This milestone marks the beginning of the feasibility phase. The F1 milestone marks the transition from reconnaissance phase to feasibility phase.
- **Public Scoping Workshop (F2).** The purpose of the public workshop was to present the General Reevaluation Report and to solicit public views and concerns as well as fulfill the requirements associated with NEPA. The public workshop was organized and conducted by the non-Federal sponsors with Corps participation and technical support.
- **General Reevaluation Report Scoping Meeting (F3).** The purpose of the F3 conference is to verify critical assumptions leading to determination of the without-project condition and screening of preliminary alternatives. Representatives from SPD, SPK, and the non-Federal sponsors will attend the meeting. Pre-meeting documentation for conference attendees will be made available prior to the meeting.
- **Alternative Review Conference (F4).** The Alternative Review Conference evaluates the final plans and reaches a consensus that the evaluations are sufficient to select a plan.
- **Alternative Formulation Briefing (F4A).** The purpose of the AFB is to review the proposed plan and discuss policy issues, leading to early Washington level acceptance of proposed recommendations and resolution of the issues. The SPK will present the alternative formulation and identify the tentatively selected plan. Representatives from HQUSACE, SPD, SPK, and the non-Federal sponsors will attend the AFB. Pre-meeting documentation for AFB attendees will be made available at least 21 calendar days prior to the meeting. The SPD Planning Chief will chair the meeting. A Final AFB guidance memorandum will be signed by HQUSACE within 15 working days of the AFB.
- **Draft General Reevaluation Report for Public Release (F5).** Based on satisfactory completion of responses to the AFB guidance memorandum, the draft report will be forwarded to SPD and HQUSACE concurrent with its release for public review.
- **Public Review & Meeting for Draft Report and EIS/EIR (F6).** SPK will present the results of the study and EIS/EIR to the public and receive comments during a 45-day public review period.

- **Feasibility Review Conference (F7 – Optional).** The final feasibility review conference will be held with SPD and HQUSACE participation to identify policy compliance actions that are required to complete the final report.
- **Final General Reevaluation Report to SPD (F8).** SPK will submit the final General Reevaluation Report to SPD in accordance with ER 1105-2-100.
- **Public Notice of Final General Reevaluation Report (F9).** Public notice and transmittal of the final General Reevaluation Report to HQUSACE for Washington-level processing.

5.2 Estimated Study Schedule

Based on the study goals and the scope previously established in this PMP, the PDT anticipates that this General Reevaluation Report will be conducted over a 30-month period according to the schedule of the major study milestones provided in the previous subsection. A detailed, graphical representation of the general reevaluation report schedule using a network analysis system can be found in [Appendix D](#).

| Milestone | Description | Duration (months) | | Date |
|-----------|----------------------------------|-------------------|-------|------|
| | | Task | Total | |
| F1 | Initiate Study | | | |
| F2 | Public Workshop/Scoping | | | |
| F3 | Feasibility Scoping Meeting | | | |
| F4 | Alternative Review Conference | | | |
| F4A | Alternative Formulation Briefing | | | |
| F5 | Draft Feasibility Report | | | |
| F6 | Public Meeting | | | |
| F7 | Feasibility Review Conference | | | |
| F8 | Final Report to SPD | | | |
| F9 | DE's Public Notice | | | |
| - | Chief's Report | | | |
| - | Project Authoriztion | | | |

6.0 Study Budget & Cost-Sharing

6.1 Cost-Sharing Requirements

The West Sacramento Project General reevaluation report will be conducted under a Feasibility Cost-Sharing Agreement (FCSA). This agreement requires the overall cost of the study to be shared equally by both parties. Section 225 of the Water Resources Development Act of 2000 revised these cost-sharing requirements such that the non-Federal sponsors may contribute their entire 50% share of General Reevaluation Report as in-kind services. This section of the PMP focuses on describing the total estimated study cost by technical category and establishing the estimated distribution of cash and in-kind services to be provided by the non-Federal sponsors. It is important to note that the actual cost estimate and the distribution of in-kind services may change subject to the iterative nature of the planning process.

6.2 Estimated Study Budget

A summary of the estimated funding necessary for successful completion of this study is presented in the following table. The detailed scopes of work used to compile this overall cost estimate can be found in [Appendix E](#).

A study contingency is assigned to cover unforeseen study requirements and uncertainties in the study cost estimate. These may have resulted from the limited information available during the development of the PMP. A 10 (ten) percent contingency will be added to the overall study cost estimate to cover unexpected additional costs such as modified alternatives and/or more extensive analysis of alternatives. Approval from the Executive Committee is required before these contingency funds can be used in the General Reevaluation Report.

*West Sacramento Project
Project Management Plan*

| Task Description – Phase II | Fed. Cost | CVFPB Cost | WSAFCA Cost | Total |
|------------------------------------|--------------------|--------------------|--------------------|--------------------|
| Surveys, Mapping, & GIS | \$25,000 | \$0 | \$225,000 | \$250,000 |
| Hydrology Studies | \$240,000 | \$0 | \$100,000 | \$340,000 |
| Hydraulic Studies | \$515,000 | \$0 | \$35,000 | \$550,000 |
| Geotechnical Studies | \$430,000 | \$0 | \$180,000 | \$610,000 |
| Engineering and Design Analysis | \$360,000 | \$0 | \$90,000 | \$450,000 |
| Architect/Engineer Negotiations | \$50,000 | \$0 | \$0 | \$50,000 |
| Economic Studies | \$365,000 | \$0 | \$0 | \$365,000 |
| Real Estate Analysis | \$70,000 | \$0 | \$30,000 | \$100,000 |
| Environmental Documentation | \$300,000 | \$0 | \$450,000 | \$750,000 |
| HTRW Studies | \$10,000 | \$0 | \$40,000 | \$50,000 |
| Cultural Resources Studies | \$95,000 | \$0 | \$0 | \$95,000 |
| Cost Estimates & Value Engineering | \$100,000 | \$0 | \$0 | \$100,000 |
| Public Involvement and Outreach | \$0 | \$0 | \$80,000 | \$80,000 |
| Planning & Report Development | \$280,000 | \$0 | \$120,000 | \$400,000 |
| Section 104 / 408 Coordination | \$300,000 | \$0 | \$0 | \$300,000 |
| Quality Management (ATR & IEPR) | \$460,000 | \$0 | \$0 | \$460,000 |
| HQUSACE Report Review & Approval | \$50,000 | \$0 | \$0 | \$50,000 |
| Project Management | \$350,000 | \$275,000 | \$75,000 | \$700,000 |
| Services Subtotal: | \$4,000,000 | \$275,000 | \$1,425,000 | \$5,700,000 |
| Actual Distribution | 70% | 5% | 25% | 100% |
| Required Distribution | 50% | 25% | 25% | 100% |
| Cash Correction | - \$1,150,000 | + \$1,150,000 | \$0 | |
| STUDY TOTAL: | \$2,850,000 | \$1,425,000 | \$1,425,000 | \$5,700,000 |

7.0 General Reevaluation Report Management Guidelines

7.1 Study Management

The Corps and non-Federal sponsors are jointly responsible for management of the West Sacramento General Reevaluation Report. Study management will occur at three basic levels: 1) Project Delivery Team; 2) Management Committee; and, 3) Executive Review Board. A description of each layer of study management is as follows:

Project Delivery Team

The Project Delivery Team (PDT) will include representatives from the Corps and the non-Federal sponsors. This team will establish an appropriate scope for the study, guide in their accomplishment, and develop and recommend potential solutions. Corps participation on the team will include representatives from Programs and Project Management, Planning, Engineering, Real Estate, and other elements as appropriate. The non-Federal sponsors will participate in study management and may also provide engineering and technical support as in-kind services. The team will provide recommendations to the Management Committee and, if necessary, the Executive Review Board regarding changes in the study scope necessary to successfully complete the General Reevaluation Report. The team will also report to the Management Committee on the results of studies and recommend alternative courses of action for study implementation.

PDT meetings will be held regularly throughout the General Reevaluation Report. These meetings will be held at no greater than one month intervals but may be held more frequently. The currently anticipated PDT members are listed on [Enclosure III](#).

Management Committee

The Management Committee will include the Civil Works Program Manager, Chief of Water Resources Branch, Chief of the Civil Design Branch, and Chief of the Environmental Resource Branch. Both the non-Federal Sponsor and their local sponsor will provide one representative along with one primary technical advisor. Collectively, those representing the non-Federal sponsors will be equal partners with the Corps representatives on the management committee. The Civil Works Branch Chief will chair the committee. The Management Committee will assist the overall study by: 1) maintaining a working knowledge of the General Reevaluation Report; 2) assisting in resolving emerging policy issues; 3) ensuring that evolving study results and policies are consistent and coordinated; 4) directing the PDT; and 5) ratifying decisions made by the PDT. The members of the Management Committee are listed on [Enclosure IV](#).

Executive Review Board

The Executive Review Board will include the SPK District Engineer, Chief of the Planning Division, Chief of the Engineering Division, and Deputy District Engineer for Programs and Project Management. Each of the non-Federal Sponsors will provide one representative along

with one primary technical advisor. Collectively, those representing the sponsors will be equal partners with the Corps representatives on the review board. The District Engineer and counterpart representing the non-Federal sponsors organizations will assist in chairing the review board. The Executive Review Board will primarily be responsible for issue resolution during the study. The review board will agree on the solutions and study direction, which may include termination. At least one Issue Resolution Conference (IRC) will be held prior to public distribution of the Draft General Reevaluation Report to ensure that all issues are resolved. Additional IRC's will be held, as required, throughout the study to resolve any problems that may arise. The members of the Executive Review Board are listed on **Enclosure V**.

7.2 Change Management

During the course of the General Reevaluation Report, the Project Delivery Team will likely identify unexpected problems or encounter unknown variables that were not included in the study budget or schedule. These problems, ranging from minor to major in scope, require a formal procedure for change management.

Depending on the scope and impact of the change, the four following potential alternative courses of action are available:

- Change is within the estimated 10% PMP contingency.
 - Approval – Project Managers (Corps & non-Federal)
 - Documentation – Meeting minutes or equivalent
- Change is less than 5% of General Reevaluation Report cost.
 - Approval – Deputy for Project Management
 - Documentation – Schedule & Cost Change Request (SACCR)
- Change is greater than 5% but less than 15% of General Reevaluation Report cost.
 - Approval – Project Review Board
 - Documentation – SACCR and revised PMP
- Change is greater than 15% of General Reevaluation Report cost.
 - Approval – FCSA Signatories
 - Documentation – FCSA Amendment and revised PMP

The project manager for the Corps and the non-Federal sponsors will review, approve, and execute all changes jointly. Team members will submit a description of the change, a suggested course of action, and the estimated impact to the project manager for review and approval from the appropriate level of authority.

7.3 Twelve Actions for Change

The 12 Actions for Change are a set of actions that the Corps will focus on to transform its priorities, processes, and planning. These actions were identified by investigative teams analyzing the performance of the Greater New Orleans Hurricane Protection System. The Corps is using these twelve actions to guide current and future work by ensuring that the Corps is adaptable, flexible, and responsive to the needs of the Nation. The 12 Actions for Change fall within three primary categories: 1) effective implementation of a comprehensive systems approach; 2) communication; and, 3) reliable public service professionalism. The actions within the first two categories may directly affect how this study is conducted. The 12 Actions for Change are:

Comprehensive Systems Approach

- Employ Integrated, Comprehensive and Systems-based Approach
- Employ Risk-Based Concepts in Planning, Design, Construction, Operations, and Major Maintenance
- Continuously Reassess and Update Policy for Program Development, Planning Guidance, Design and Construction Standards
- Dynamic Independent Review
- Employ Adaptive Planning and Engineering Systems
- Focus on Sustainability
- Review and Inspect Completed Works
- Assess and Modify Organizational Behavior

Communication

- Effectively Communicate Risk
- Establish Public Involvement Risk Reduction Strategies

Reliable Public Service Professionalism

- Manage and Enhance Technical Expertise and Professionalism
- Invest in Research

At each major milestone, the Project Delivery Team (PDT) will assess how the 12 Actions for Change are being incorporated in the study and identify any necessary areas of improvement.

8.0 Quality Control Plan

8.1 Quality Control Objectives

The primary objective of this quality control plan is to ensure that the West Sacramento General Reevaluation Report and its associated products are of the highest quality. This will be done by establishing the appropriate level of evaluation of technical products and processes to ensure that they meet customer requirements and comply with applicable laws, regulations, and sound technical practices of the disciplines involved.

The CESPCK Project Manager is responsible for ensuring that all required levels of technical review of the General Reevaluation Report, EIS/EIR, and related materials are resourced and executed consistent with the current CESPCK and CESPCK Quality Management Plans and associated technical review implementation guidance. CESPCK will provide quality assurance, facilitate coordination with other districts to provide an Agency Technical Review (ATR) Leader and other members for inter-district review, and provide technical and planning management support to CESPCK, as needed, in resolving major policy and technical issues.

8.2 Guidelines for Technical Review

The products listed in this Section will be reviewed for compliance with appropriate public laws; engineering regulations, circulars, and manuals; planning and policy guidance; and standard engineering and scientific practices. The guidelines for technical review are set forth in CESPCK-R- 1110-1-8, "South Pacific Division Quality Management Plan," September 2004, and in the corresponding "Sacramento District Quality Management Plan," March 2004.

A Technical Review Strategy Session (TRSS), as required in Paragraph 8.2 of Appendix C in CESPCK-R-1110-1-8 has not been completed in association with the development of this PMP. A waiver by the Sacramento District Chief of Planning to conduct a TRSS immediately upon execution of the FCSA has been requested.

8.3 Level of Detail for Technical Review

Study products will be reviewed at a feasibility level of detail for the following:

- Compliance with established policy and other appropriate guidance
- Adequacy of the scope of the document
- Appropriateness of all planning, engineering, design, and environmental assumptions and methods, including development of without-project assumptions
- Appropriateness of data used, including level of detail
- Appropriateness of alternatives evaluated
- Consistency
- Accuracy
- Comprehensiveness
- Reasonableness of results

8.4 Products for Review

All of the products developed in association with this PMP will be subject to technical review. Seamless single discipline review will be accomplished and documented prior to the release of materials to other members of the study team or integrated into the overall study. PDT members and their respective Section Chiefs will be responsible for accuracy of the documentation and computations through design checks and other internal procedures prior to the ATR.

Independent product review will occur prior to major decision points in the planning process at the CESPDM milestones so that the technical results can be relied on in setting the direction for further study. These products will include documentation for the CESPDM mandatory milestone conferences (F3, F4, and F4A), HQUSACE Issue Resolution Conferences (IRC's), and the draft and final reports. These products will be essentially complete before ATR is initiated. Based on the occurrence of quality control prior to each milestone conference and a firm technical basis for making decisions will have already been established, the conference will address critical outstanding issues and set the direction for the next step of the study. In general, the ATR will be initiated at least 30 days prior to sending a complete and certified Pre-Conference Document or Decision Documents (draft and final FR and EIS/EIR).

For products that are developed under contract, the contractor will be responsible for quality control through an independent technical review. Quality assurance of the contractor's quality control will be the responsibility of the District. The independent technical review team will review the following documents:

- PMP and updates
- Feasibility Scoping Meeting (FSM) Pre-Conference Document (F3 Milestone)
- Alternatives Review Conference (ARC) Pre-Conference Document (F4 Milestone)
- Alternative Formulation Briefing (AFB) Pre-Conference Document (F4A Milestone)
- Draft General reevaluation report and EIS/EIR (F5 Milestone)
- Final General reevaluation report and EIS/EIR (F8 Milestone)

Appropriate ATR team members will also review the following study products prior to their incorporation into the overall study (seamless review):

- Hydrology, Hydraulic Design and Floodplain Mapping
- Plan Formulation
- Geotechnical Engineering
- Civil and Structural Design Calculations, Quantities, and Plates
- Cost Estimates and Value Engineering (VE) Analysis
- Risk and Economic Benefit Analysis
- Real Estate Assessment

8.5 Aspects of Technical Review

Quality Management for the West Sacramento General Reevaluation Report (GRR) and associated technical studies will take place at various levels depending on the complexity, sensitivity, and importance of the individual discipline or technical product. These levels of review are listed and described as follows:

- **District Quality Control (DQC)** – Seamless single discipline review will be accomplished and documented prior to the release of materials to other members of the study team or integrated into the overall study. PDT members and their respective Section Chiefs will be responsible for accuracy of the documentation and computations through design checks and other internal procedures prior to the ATR.

The review and coordination of approvals under Section 104 of WRDA 1986 is anticipated as part of this study as described in Section 4.2 of this PMP. A Quality Control Plan specifically for the review and certification of these applications has been attached as **Enclosure VIII**.

- **Model Certification** - The computational models to be employed in the West Sacramento, California, GRR have either been developed by or for the Corps. Model certification and approval for all identified planning models will be coordinated through the PCX as needed in accordance with EC 1105-2-407. A Review Plan explaining how Model Certification will be accomplished in the case of this study has been included as a supplement to this PMP in **Appendix C**.
- **Agency Technical Review (ATR)** – EC 1105-2-410 characterizes ATR (which replaces the level of review formerly known as Independent Technical Review) as an in-depth review, managed within USACE, and conducted by a qualified team outside of the home district that is not involved in the day-to-day production of a project or product. ATR will be coordinated with the Corps' National Center of Expertise for Flood Risk Management. A Review Plan explaining how ATR will be applied in the case of this study has been included as a supplement to this PMP in **Appendix C**.
- **Independent External Peer Review (IEPR)** – A GRR of this size and complexity will require IEPR in addition to ATR as part of the quality management process. EC 1105-2-410 characterizes the IEPR process. This process was originally added to the existing Corps review process via EC 1105-2-408. IEPR is the most independent level of review, and is applied in cases that meet certain criteria where the risk and magnitude of the proposed project are such that a critical examination by a qualified team outside of USACE is warranted. IEPR will be coordinated with the Corps' National Center of Expertise for Flood Risk Management. A Review Plan explaining how IEPR will be applied in the case of this study has been included as a supplement to this PMP in **Appendix C**.

The lead planner for the study will be the main point of contact for IEPR; coordinator of IEPR and ATR between the various review teams, the PDT, and the Flood Risk Management Center of Expertise (SPD) and the Ecosystem Restoration Center of Expertise.

8.6 Cost Estimate for Quality Management

The costs for conducting District Quality Control are included in the individual SOW's contained in **Appendix E**; and, Quality Management activities of Branch and Division Chiefs are included in the cost estimates for Supervision and Administration (S&A).

The total cost of Quality Management, including the costs of ATR and IEPR, eligible for cost-sharing is estimated at \$460,000 or approximately 8% percent of the study cost estimate.

| | | |
|--------------------------------------|--------------------------------|------------------|
| Responsible Element: USACE | | |
| All Organizations | | |
| Cost: | | |
| <input type="checkbox"/> | Sacramento District: | \$460,000 |
| <input type="checkbox"/> | Sponsors In-Kind Contribution: | \$0 |
| Current Total Estimated Cost: | | \$460,000 |

8.7 Known Policy Questions

There are no known policy issues at this time.

8.8 Major Technical Issues

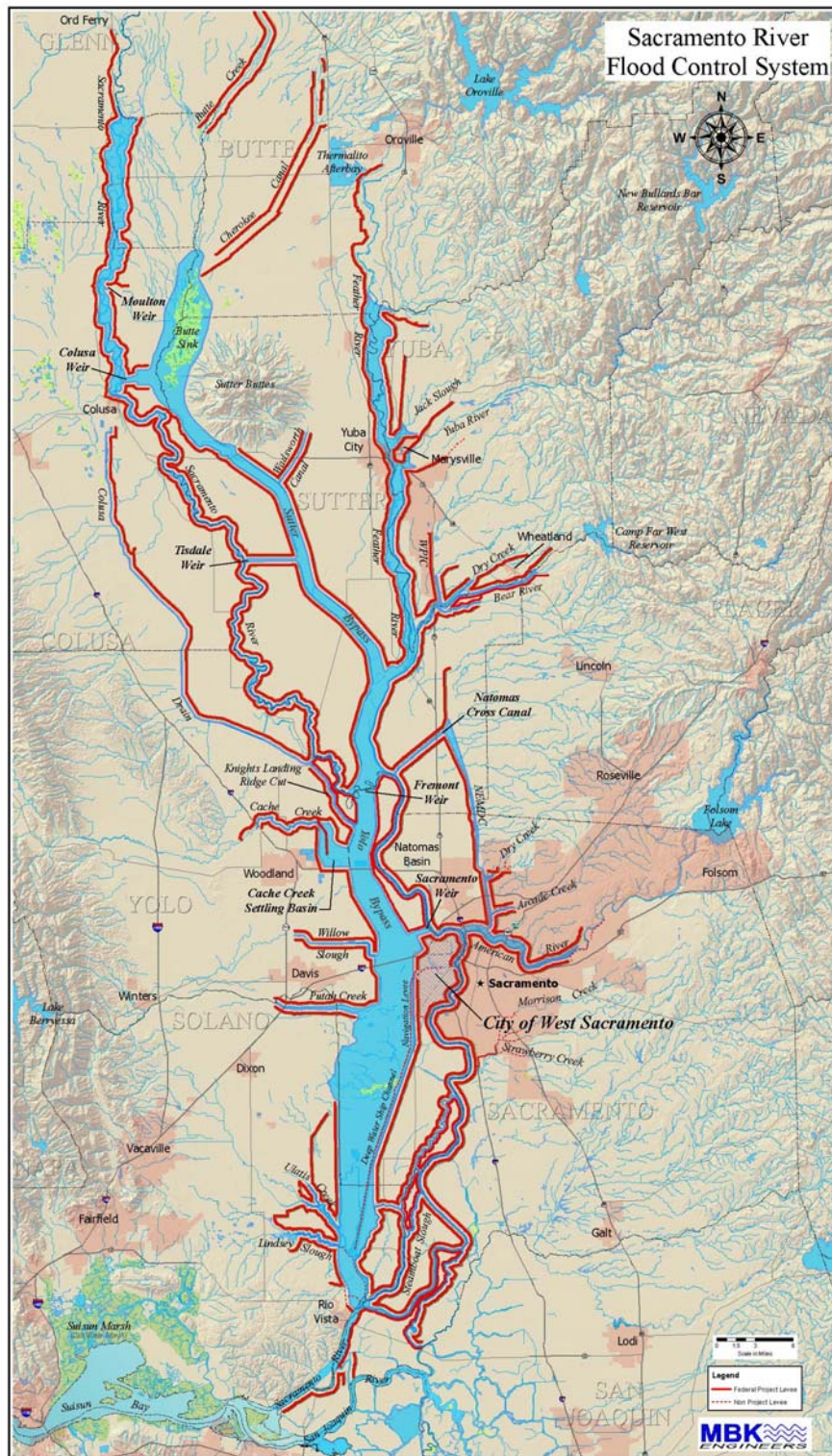
There are no known major technical issues at this time. The Corps and non-Federal sponsors will coordinate to achieve consensus on the types and applications of appropriate technical tools, methodologies, processes, and related strategies and assumptions.

8.9 PMP Quality Control Certification

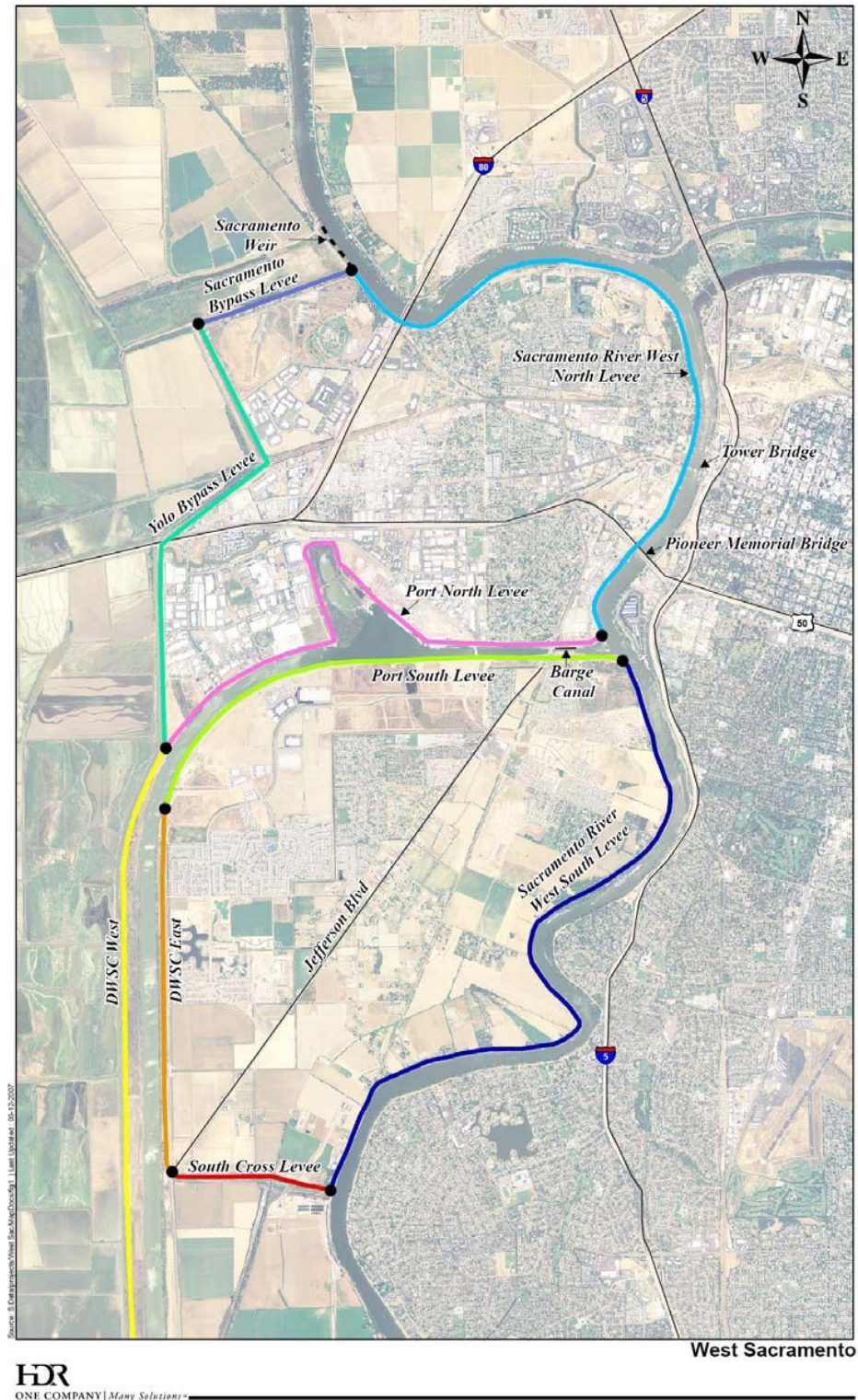
The Chief of Planning Division has certified that: 1) the independent technical review process for this PMP has been completed; 2) all issues have been addressed; 3) the streamlining initiatives proposed in this PMP will result in a technically adequate product; and, 4) appropriate quality control plan requirements have been adequately incorporated into this PMP. The signed certification is included as **Enclosure IX**.

Enclosures

I. Sacramento River Flood Control System Map



II. West Sacramento Study Area Map



III. Project Delivery Team Members

| Name and Org. | Title | Phone | E-mail |
|-----------------------------|--------------------|----------------|--|
| Michelle Kuhl CESPK-PM-C | Project Manager | (916) 557-7619 | Michelle.M.Kuhl@usace.army.mil |
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IV. Management Committee Members

| Name and Org. | Title | Phone | E-mail |
|--------------------------|------------------------------|-------|--------|
| Brandon Muncy (USACE) | Chief, Civil Works Branch | | |
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V. Executive Review Board Members

| Name and Org. | Title | Phone | E-mail |
|--|------------------------------------|-------|--------|
| COL Thomas Chapman (USACE) | District Engineer | | |
| Christine Altendorf (USACE) | DPM | | |
| Frank Piccola (USACE) | Chief, Planning Div. | | |
| Kevin Knuuti (USACE) | Chief, Engineering Div. | | |
| Jay Punia (CVFPB) | Executive Officer | | |
| Eric Koch (CA-DWR) | Chief, Div. of Flood Management | | |
| Ken Ruzich (WSAFCA) | General Manager | | |
| Toby Ross (City of West Sacramento) | City Manager | | |

VI. Acronyms and Abbreviations

1. **AFB** – Alternative Formulation Briefing
2. **CAR** – Coordination Act Report
3. **CEQA** – California Environmental Quality Act
4. **CESPD** – Corps of Engineers South Pacific Division
5. **CESPK** – Corps of Engineers Sacramento District
6. **Corps** – U.S. Army Corps of Engineers
7. **DFG** – Department of Fish and Game
8. **EBRPD** – East Bay Regional Parks District
9. **EIS** – Environmental Impact Statement
10. **EIR** – Environmental Impact Report
11. **ESA** – Endangered Species Act
12. **FCSA** – Feasibility Cost Sharing Agreement
13. **FEMA** – Federal Emergency Management Agency
14. **GIS** – Geographic Information System
15. **GRR** – General Reevaluation Report
16. **HEC** – Hydrologic Engineering Center
17. **HEP** – Habitat Evaluation Procedure
18. **HQUSACE** – Headquarters, U.S. Army Corps of Engineers
19. **HTRW** – Hazardous, Toxic, and Radioactive Waste
20. **ITRT** – Independent Technical Review Team
21. **LEDPA** – Least Environmentally Damaging Preferred Alternative
22. **LPP** – Locally Preferred Plan
23. **NED** – National Economic Development
24. **NEPA** – National Environmental Policy Act
25. **NMFS** – National Marine Fisheries Service
26. **PCA** – Project Cooperation Agreement
27. **PDT** – Project Delivery Team
28. **PED** – Pre-Construction Engineering and Design
29. **PL** – Public Law
30. **PM** – Project Manager
31. **PMBP** – Project Management Business Process
32. **PMP** – Project Management Plan
33. **QCP** – Quality Control Plan
34. **QMP** – Quality Management Plan
35. **PRB** – Project Review Board
36. **ROD** – Record of Decision
37. **RWQCB** – Regional Water Quality Control Board
38. **SACCR** – Schedule and Cost Change Request
39. **SAFCA** – Sacramento Area Flood Control Authority
40. **USACE** – U.S. Army Corps of Engineers
41. **USFWS** – United States Fish and Wildlife Service
42. **WBS** – Work Breakdown Structure
43. **WRDA** – Water Resources Development Act

VII. Technical Requirements

The work tasks and products described in this PMP will be developed to a feasibility level of effort. The scope of study in terms of content and level of detail for the evaluation phase are defined and required by, but not limited to, the following documents:

| | | |
|----------------|---|-------------|
| DM 1165-2-501 | Surveying and Mapping | Dec 1999 |
| EC 11-1-114 | Value Management (VM)/Value Engineering (VE) | 3 Feb 2003 |
| EC 1105-2-404 | Planning Civil Works Project Under the [Corps] Environmental Operating Principles | 1 May 2003 |
| EC 1105-2-405 | Division Engineers Submittal of Final Decision Document for Projects Requiring Specific Authorization | 31 Mar 2005 |
| EC 1105-2-406 | District Engineers Presentation of Final Decision Document for Projects Requiring Specific Authorization | 31 Mar 2005 |
| EC 1105-2-407 | Planning Models Improvement Program: Model Certification | 31 May 2005 |
| EC 1105-2-408 | Peer Review of Decision Documents | 31 May 2005 |
| EC 1105-2-409 | Planning in a Collaborative Environment | 31 May 2005 |
| EM 1110-2-1411 | Standard Project Flood Determination | 01 Mar 1965 |
| EM 1110-2-1413 | Hydrologic Analysis of Interior Areas | 15 Jan 1987 |
| EM 1110-2-1415 | Hydrologic Frequency Analysis | 05 Mar 1993 |
| EM 1110-2-1416 | River Hydraulics | 15 Oct 1993 |
| EM 1110-2-1417 | Flood Runoff Analysis | 31 Aug 1994 |
| EM 1110-2-1419 | Hydrologic Engineering Requirements of Flood Damage Reduction Studies | 31 Jan 1995 |
| EM 1110-2-1420 | Hydrologic Engineering Requirements of Reservoirs | 31 Oct 1997 |
| EM 1110-2-1602 | Hydraulic Design of Reservoir Outlet Works | 15 Oct 1980 |
| EM 1110-2-1603 | Hydraulic Design of Spillways | 16 Jan 1990 |

| | | |
|----------------|---|---------------|
| EM 1110-2-3600 | Management of Water Control Systems | 30 Nov 1987 |
| ER 5-1-11 | Programs and Project Management | 17 Aug 2001 |
| ER 200-2-2 | Procedures for Implementing NEPA | 4 Mar 1988 |
| ER 405-1-12 | Real Estate Handbook - Local Cooperation | 1 May 1998 |
| ER 1105-2-100 | Planning Guidance Notebook | 22 Apr 2000 |
| ER 1110-1-12 | Quality Management | 1 Jun 1993 |
| ER 1110-2-1150 | Engineering and Design for Civil Works Projects | 31 Aug 1999 |
| ER 1110-2-1302 | Engineering and Design, Civil Works Cost Engineering | 31 Mar 1994 |
| ER 1110-2-8154 | Water Quality and Environmental Management for Corps Civil Works Projects | 31 May 1995 |
| ER 1130-2-530 | Project Operations, Flood Control Operations, & Maintenance Policies | 30 Oct 2002 |
| ER 1130-2-540 | Environmental Stewardship, Operations & Policies | Nov 1996/2002 |
| ER 1130-2-550 | Recreation Operations & Maintenance Policies | Nov 1996/2002 |
| ER 1165-2-119 | Modifications to Completed Projects | 20 Sep 1982 |
| ER 1165-2-131 | Local Cooperation Agreement for New Starts | 15 Apr 1989 |
| ER 1165-2-132 | Hazardous, Toxic, and Radioactive Waste (HTRW) Guidance for Civil Works Projects | 26 Jun 1992 |
| ER 1165-2-206 | Delegation of Review, Approval, and Signature Authority for Project Cooperation Agreements for Specifically Authorized Projects | 30 Jan 2004 |
| ER 1165-2-400 | Recreational Planning, Development, and Management Policies | 9 Aug 1985 |
| ER 1165-2-501 | Water Resources Policies and Authorities, Civil Works Ecosystem Restoration Policy | 30 Sep 1999 |

| | | |
|------------------|--|-------------|
| ER 1165-2-205 | Delegation of Review and Approval Authority for Post-Authorization Decision Documents | 31 Mar 2004 |
| ETL 1110-2-556 | Risk-Based Analysis in Geotechnical Engineering for the Support of Planning Studies | May 1999 |
| U.S. Water Res. | Economic and Environmental Principles and Guidelines, Council Publication for Water and Related Land Resources, Implementation Studies | 10 Mar 1983 |
| CESPD-R-1110-1-8 | CESPD Quality Management Plan | Sep 2004 |
| CESPK-01-B | Sacramento District Quality Management Plan Appendix B, QMP for Planning | Mar 2004 |

VIII. Quality Control Plan - Section 104 Applications

IX. PMP Quality Control Certification

The U.S. Army Corps of Engineers – Sacramento District has completed the Project Management Plan (PMP) for the West Sacramento Project General reevaluation report. All of the required quality control activities associated with the development of a PMP have also been completed. Compliance with clearly established policy principles and procedures, utilizing justified and valid assumptions, has been verified, including whether the PMP meets the non-Federal sponsors needs and is consistent with law and existing Corps policy. All issues and concerns resulting from the review of the PMP have been resolved.

Date

John Doe
ITR Chair

CERTIFICATION

Certification is hereby given that: 1) the review process for this PMP has been completed; 2) all issues have been addressed; 3) the streamlining initiatives proposed in this PMP will result in a technically adequate product; and, 4) appropriate quality control plan requirements have been adequately incorporated into this PMP. In summary, the study may proceed into the feasibility phase in accordance with this PMP.

Date

Frank Piccola
Chief, Planning Division

Appendices

A. Sacramento River Basin Description

Flood flows in the upper Sacramento River Basin below Shasta Dam are generally confined to their channels and their immediate overbank areas. After passing near Red Bluff, the Sacramento River flows onto a broad alluvial ridge flanked by lower flood basins. The ridge is the result of sediment deposition in the primary floodplain and subsidence in the Butte Basin and Colusa Trough areas. Consequently, most of the tributary flows to the east and south of Ord Ferry do not enter the Sacramento River directly, but instead flow southward for a considerable distance downstream through the Butte and Sutter Basins. The tributaries to the west enter Colusa Trough (Colusa Main Drain) before reaching the Sacramento River at Knights Landing. During high flow Colusa Main Drain is diverted through the Knights Landing Ridge Cut south to the Yolo Bypass before entering the Sacramento River. Drainage areas west of the Yolo Bypass (Cache Creek, Willow Slough, and Putah Creek) enter that bypass before entering the Sacramento River.

When the Sacramento River is flooding, the Butte and Sutter basins receive considerable overflow from the Sacramento River. The weirs were designed to begin operation in a particular order. Flood waters flow over the Tisdale Weir first, the Colusa Weir second, Fremont Weir third, Moulton Weir fourth, and the Sacramento Weir last. Colusa Weir and Moulton Weir overflows enter the Butte Basin and Butte Slough, which flow southward towards the Sutter Bypass. The Tisdale Weir discharges into the Sutter Bypass, which dumps its water into the Feather and Sacramento Rivers above Fremont Weir and Verona at the Sacramento and Feather River confluence.

At this point, the flood waters either continue down the Sacramento River past Verona or flow over the Fremont Weir into the Yolo Bypass. The Yolo Bypass empties back into the Sacramento River above Rio Vista, and downstream the river empties into the San Francisco Bay. The Sacramento Weir lies between Verona and Sacramento on the Sacramento River. When stages are high at the Sacramento Weir, its 48 gates are opened incrementally. Water then flows over the weir into the Sacramento Bypass and then into the Yolo Bypass. The American River discharges into the Sacramento River at Sacramento. When high stages are occurring on the Sacramento and the American Rivers, a portion of the flow in the American River will flow up the Sacramento River and spill over the Sacramento Weir. Sacramento and American River waters not spilling over the Sacramento Weir flow south and west to Rio Vista.

Flood Basins

Flood basins are flood prone areas that lie or use to lie in the primary floodplain of the Sacramento River. Many of these areas have been totally or partially reclaimed by the construction of protective levees. The principal flood basins below Red Bluff are described as follows:

1. **Butte Basin.** Butte Basin lies north of the Sutter Buttes and south of the latitude of Ord Ferry. It has an area of 150 square miles and a detention-storage capacity between

500,000 and 700,000 acre-feet during historical floods. It receives overflow water from the Sacramento River over low banks near Ord Ferry, when flows at Ord Ferry exceed 90,000 cfs at this location; through the overflow weir at Moulton, when the river is above 60,000 cfs at this location; and through Colusa Weir, when the river is above 30,000 cfs at this location. Butte Basin has received overflow north of the Sutter Buttes from the Feather River prior to construction of levees along the west bank of Feather River. Butte Basin discharges pass through the Butte Slough outfall gates into the Sacramento River when the river is low and into Sutter Bypass when the river is high. There is a potential of an additional 100,000 acre-feet of flood plain storage above Ord Ferry for a flood larger than has historically occurred.

2. **Sutter Basin.** Sutter Basin is south of Sutter Buttes. It has a drainage area of 138 square miles and has a potential detention-storage capacity of 890,000 acre-feet if right and left levee banks of the Sutter Bypass fail. The Sutter Bypass runs through the middle of the Sutter Basin. Design capacity of the Sutter Bypass varies from 150,000 cfs at Long Bridge to 180,000 cfs just below Tisdale Weir and to 380,000 cfs below the confluence of the Feather River. Sutter Bypass receives flows from Butte Slough, Wadsworth Canal, interior drainage from pumping plants and the Sacramento River by way of Tisdale Weir. Tisdale Weir starts to spill when flows exceed 23,000 cfs in the Sacramento River.
3. **Colusa Trough.** Colusa Trough (sometimes called Colusa Basin) is on the west side of the Sacramento River, extending from south of Stony Creek to Cache Creek, and has a detention storage potential of 690,000 acre-feet. The eastern side of this basin has been partially reclaimed by levees and an interception ditch along the west side of these levees. The interception ditch discharges into Sacramento River through Knights Landing outfall gates when the river is low or into the Yolo Bypass through Knights Landing Ridge Cut when the river is high. Flows in the Sacramento River at Ord Ferry would have to exceed 300,000 cfs before any water would spill into the Colusa Trough.
4. **American Basin.** American Basin is south of Feather River and north of American River. It has a drainage area of 110 square miles and had a detention-storage capacity of 570,000 acre-feet prior to levee construction. This basin has been reclaimed by construction of levees along Feather, Sacramento, and American Rivers and construction of Natomas Cross Canal and Natomas East Main Drainage Canal (NEMDC).
5. **Yolo Basin.** Yolo Basin is 50 miles long and 7 miles wide and has a detention-storage of 1,110,000 acre-feet. Its location is south of Fremont Weir, east of the Sacramento River and extends south to Rio Vista. The Yolo Bypass runs through the center of this basin carrying surplus flood waters from the Sacramento River at Fremont Weir to an

enlarged Sacramento River channel near Suisun Bay. The rest of the Yolo Basin is used for agriculture and the Deep Water Ship Channel.

6. **Sacramento Basin.** Sacramento Basin is a narrow depression south of American Basin and extends almost to Walnut Grove. This basin has long been reclaimed but is subject to flooding from overflow from the Mokelumne River at its lower end. The Mokelumne River usually flows directly into the Sacramento and San Joaquin River Delta.

Channel Capacities

The levees along the Feather River and its tributaries from Oroville to Nicolaus protect about 530 square miles from flooding, with estimated detention storage of over 600,000 acre-feet with levee failure. Design channel capacity on the Feather River increases from 210,000 cfs above the Yuba River, to 300,000 cfs below the Yuba River, to 320,000 cfs below the Bear River. The Yuba River, from the Feather River to about 8 miles upstream, has a channel capacity of 180,000 cfs when Feather River flows are low, and 120,000 cfs when Feather River flows are high. Design channel capacity for the Yolo Bypass increases from 343,000 cfs below Fremont Weir, to 362,000 cfs above the Sacramento Weir, to 480,000 cfs at the latitude of West Sacramento, to 500,000 cfs at its confluence to the Sacramento River near Rio Vista. Sacramento River at Verona has a channel capacity of 107,000 cfs, its capacity increases to 110,000 cfs at Sacramento. The Sacramento Bypass can carry 112,000 cfs. The American River channel capacity from Folsom Dam to Sacramento has been certified to safely carry 145,000 cfs. The largest peak flows at the Sacramento - Feather River Confluence (SFRC) seem to be caused by storm centerings over the Feather River Basin. Since the 1930's, good flow records have been available on a continuous basis for most of the drainage area above the SFRC. The Four largest storms during this period, in January 1997, February 1986, December 1964 and December 1955, were centered over the Feather-American River Basins. Historical floods have tested this system many times, but none stressed the system as the January 1997 and February 1986 floods. In many areas the design flows were exceeded.

System Characteristics

The Sacramento flood control system stages are sensitive to all flows and levee failures within the system. The stages in the area of the Fremont Weir are dependent upon how the flows occur in time and magnitude in the Sacramento, Feather, and American Rivers. Historically, during major runoff events, levee failures have helped to reduce downstream stages. Thus, if upstream levees are prevented from failing, there is a greater potential for higher stages than have occurred historically. During the February 1986, and January 1997 flood events, the lower part of the system, from the mouth of the Feather River to below Rio Vista, experienced flows which surpassed previous records.

B. Communications Plan

Purpose

This template describes the basic elements of a U.S. Army Corps of Engineers Communications Plan. The Corps Project Management Business Process directs that all projects, events, and issues of significant public interest have a communication plan. Our goal is to provide accurate, timely, and consistent information to the public, stakeholders, and interested members of the Corps team.

Communication is most powerful when everyone at every level is able to rapidly respond to questions and tell the same story in the same way. A good plan gives everyone who speaks for the Corps – from CESPK to HQUSACE – rapid access to key messages, frequently asked questions, expert points of contact (POCs), stakeholder contacts, current status, and historical context. The Communications Plan also identifies important milestones so that project managers can schedule resources and make communications an integral part of the project management business process.

A Communications Plan consists of three parts:

- Research
- Rollout Plan
- Lessons Learned/Next Steps.

PART 1 – Research

This first part of the Communications Plan involves the following elements:

- Describe the purpose of the project, issue, or event. (*Why are we doing this?*)
- Describe the desired outcome. (What will success look like? How is it connected to the strategic objectives? Use measures if appropriate.)
- Form the PDT. (Who will be involved? Who are the subject matters experts? Who are spokespersons? Will CESPD and HQUSACE play a role and need to be involved? What is the sponsors role?)
- Develop a coordination list/schedule. (Who needs to approve the plan? Does it need DA/CEQ/OMB approval? Do sponsors need to be aware?)
- List basic communication and reference documents that are being used. (This may include conducting original research and/or gathering secondary research.)
- What are relevant lessons learned?

PART 2 – Rollout Plan

This second part of the Communications Plan involves the following elements:

- Key messages - What do people need to know and remember?
- Stakeholders and their roles identified - *What are their key interests?*
- Plan with alternatives - How will we communicate? What are the different alternatives? Include 2-way communication whenever possible. What are the risks and benefits of each?
- What is our communications posture? Passive (ready to respond to questions). Active (working to get the word out and solicit feedback).
- Timetable: 1) Who does what and when; 2) Congressional notification; 3) Stakeholder notification; 4) Spokespersons identified with contact information and areas of expertise; and, 5) Media strategy.
- Communications documents: 1) News release (Shorter is better. Use "important points to remember" and/or "Official statements" as attachments. Include quotes.); 2) Key messages and talking points for communicating with the stakeholders, public, news media, and employees; 3) Anticipated questions and answers (five you hope you get and five you don't want to be surprised by); 4) Fact sheets; 5) Illustrations and photos; 6) Web documents of hot topics; 7) Maps; and, 8) Public meetings, press tour/conference, and other events.

PART 3 – Lessons Learned / Next Steps

This third part of the Communications Plan involves the following elements:

- Media analysis - A brief recap of the coverage we got, an analysis of whether we got the message out and the tone of the stories.
- Lessons learned - What did we learn from this communication activity. What worked and what didn't work?
- Next steps - What are the next steps that are required or expected from the communication issue/event just completed?

C. Geospatial Data Management Plan

D. Review Plan

E. Detailed General Reevaluation Report Schedule

F. Detailed Scopes of Work